
**Plastics — Determination of thermal
conductivity and thermal diffusivity —**

**Part 1:
General principles**

*Plastiques — Détermination de la conductivité thermique et de la
diffusivité thermique —*

Partie 1: Principes généraux



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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 22007-1 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 5, *Physical-chemical properties*.

ISO 22007 consists of the following parts, under the general title *Plastics — Determination of thermal conductivity and thermal diffusivity*:

- *Part 1: General principles*
- *Part 2: Transient plane heat source (hot disc) method*
- *Part 3: Temperature wave analysis method*
- *Part 4: Laser flash method*
- *Part 5: Determination of thermal conductivity and thermal diffusivity of poly(methyl methacrylate)*
[Technical Report] (in preparation)

Plastics — Determination of thermal conductivity and thermal diffusivity —

Part 1: General principles

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1 Scope

This part of ISO 22007 describes the background to methods for the determination of the thermal conductivity and thermal diffusivity of polymeric materials. Different techniques are available for these measurements and some may be better suited than others for a particular type, state and form of material. This part of ISO 22007 provides a broad overview of these techniques. Standards specific to these techniques, as referenced in this part of ISO 22007, are used to carry out the actual test method.

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 472, *Plastics — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 472 and the following apply.

3.1

heat pulse

heat change in the form of a pulse produced by a heat source

3.2

heat pulse energy

amount of heat produced by a heat source within the heat pulse

NOTE It is expressed in joules (J).

3.3

heat source

heater in the form of a wire, strip, plate or foil embedded within or attached to a test specimen or an area irradiated by incident light, e.g. a laser