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Fine ceramics (advanced ceramics, advanced technical ceramics) - Thermophysical properties of ceramic composites - Determination of specific heat capacity (ISO 19628:2024)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 02/25

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English Version

Fine ceramics (advanced ceramics, advanced technical ceramics) - Thermophysical properties of ceramic composites - Determination of specific heat capacity (ISO 19628:2024)

Céramiques techniques - Propriétés thermophysiques des composites céramiques - Détermination de la capacité thermique massique (ISO 19628:2024)

Hochleistungskeramik - Thermophysikalische Eigenschaften von keramischen Verbundwerkstoffen - Bestimmung der spezifischen Wärmekapazität (ISO 19628:2024)

This European Standard was approved by CEN on 21 July 2024.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN ISO 19628:2024 E

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European foreword

This document (EN ISO 19628:2024) has been prepared by Technical Committee ISO/TC 206 "Fine ceramics" in collaboration with Technical Committee CEN/TC 184 “Advanced technical ceramics” the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2025, and conflicting national standards shall be withdrawn at the latest by May 2025.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Endorsement notice

The text of ISO 19628:2024 has been approved by CEN as EN ISO 19628:2024 without any modification.

International Standard

ISO 19628

Fine ceramics (advanced ceramics, advanced technical ceramics) — Thermophysical properties of ceramic composites — Determination of specific heat capacity

Céramiques techniques — Propriétés thermophysiques des composites céramiques — Détermination de la capacité thermique massique

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 206, *Fine ceramics,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 184, *Advanced technical ceramics,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 19268:2017), which has been technically revised.

The main changes are as follows:

— revised scope to extend the maximum temperature of use of Method A to 3 000 K;

— revised Clause 4 by introducing the possibility to apply the drop calorimetry method for temperatures T1 > T2 (conventional drop calorimetry);

— relevant specifications added concerning the containers and thermometers to be used;

— description of in-situ calibration methods of the calorimeter and thermometers;

— addition of a paragraph dealing with the determination of specific heat capacity at given temperatures from measurements performed by drop calorimetry;

— updated list of references in the Bibliography.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

International Standard **ISO 19628:2024(en)**

Fine ceramics (advanced ceramics, advanced technical ceramics) — Thermophysical properties of ceramic composites — Determination of specific heat capacity

1 Scope

This document specifies two methods for the determination of the specific heat capacity of ceramic matrix composites with continuous reinforcements (1D, 2D, 3D).

Unidirectional (1D), bi-directional (2D) and tridirectional (XD, with $2 < X \leq 3$).

The two methods are:

— method A: drop calorimetry;

— method B: differential scanning calorimetry.

The two methods are applicable from ambient temperature up to a maximum temperature that is method dependent: method A can be used up to 3 000 K, while method B is limited to 1 900 K.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 19634, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Ceramic composites — Notations and symbols*

IEC 60584-1, *Thermocouples — Part 1: EMF specifications and tolerances*