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Fine ceramics (advanced ceramics, advanced technical ceramics) — Measurement method for normal spectral emissivity using blackbody reference with an FTIR spectrometer

Céramiques techniques — Méthode de mesure de l'émissivité spectrale normale utilisant un corps noir de référence avec un spectromètre FTIR

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Foreword

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 206, *Fine ceramics*.

Fine ceramics (advanced ceramics, advanced technical ceramics) — Measurement method for normal spectral emissivity using blackbody reference with an FTIR spectrometer

1 Scope

This document specifies a method used for the determination of normal spectral emissivity and normal quasi-total emissivity of fine ceramics using blackbody reference with a Fourier transform infrared spectrometer (FTIR) at elevated temperatures. This method is applicable to fine ceramics, ceramic matrix composites, and continuous fibre-reinforced ceramic matrix composites which are opaque and highly non-reflective at wavelengths between 1,67 µm and 25 µm. The applicable temperature range is approximately 350 K to 1 100 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.

IEC 60584-2, *Thermocouples — Part 2: Tolerances*

IEC 60751, *Industrial platinum resistance thermometers and platinum temperature sensors*

3 Terms, definitions and symbols

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

3.1
emissivity
ε
ratio of the radiant emittance of a substance (specimen) to the radiant emittance of a *blackbody* (3.2) at the same temperature

3.2
blackbody
ideal thermal radiator that absorbs all incident radiation completely, whatever the wavelength, direction of incidence or polarization

3.3
spectral emissivity
$\varepsilon_S(\lambda, T)$
emissivity (3.1) of a specimen at a defined wavelength λ and temperature T