
**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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Contents

Page

Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms, definitions and symbols	1
4 Principle	2
5 Apparatus	2
5.1 Measurement system	2
5.2 Fourier transform infrared spectrometer (FTIR)	2
5.3 Specimen heating device	2
5.4 Blackbody furnace	4
5.5 Temperature measuring devices and thermometer	4
5.6 Mirror	4
6 Test specimens	4
7 Measurement preparation	6
7.1 Position of a blackbody furnace and a specimen	6
7.2 Wavelength calibration	6
7.3 Verification of linearity	6
7.4 Verification of stability	6
7.5 Validation of measurement system	6
8 Test condition	7
9 Test procedure	7
9.1 Background infrared radiance spectrum measurement	7
9.2 Specimen installation	7
9.3 Infrared radiance spectrum measurement	7
10 Calculations	7
10.1 Normal spectral emissivity	7
10.2 Normal quasi-total emissivity	8
11 Test report	9
Annex A (informative) Calculation of theoretical infrared radiance spectrum $L(\lambda, T)$ using Planck's blackbody radiation function	10
Annex B (informative) Christiansen effect	11
Annex C (informative) Validity of normal quasi-total emissivity	12
Bibliography	13

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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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