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Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for determining elastic modulus of thick ceramic coatings at elevated temperature

Céramiques techniques — Méthode d'essai relative à la détermination du module élastique des revêtements de céramique épais à température élevée

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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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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*.

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Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for determining elastic modulus of thick ceramic coatings at elevated temperature

1 Scope

This document specifies a method of test for determining the elastic modulus of thick ceramic monolayer coatings (thickness > 0,03 mm) at elevated temperatures, using the impulse excitation method. Procedures for test piece preparation, test modes and rates (load rate or displacement), data collection, and reporting procedures are given.

This document applies primarily to brittle ceramic coatings on ceramic or metal substrates. This test method can be used for material research, quality control, and characterization and design data-generation purposes.

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 3611, *Geometrical product specifications (GPS) — Dimensional measuring equipment: Micrometers for external measurements — Design and metrological characteristics*

ISO 17561, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for elastic moduli of monolithic ceramics at room temperature by sonic resonance*

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

3 Terms and definitions

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
elastic modulus
ratio of plane stress to plane strain

Note 1 to entry: Also known as Young's modulus.

3.2
flexural vibrations
vibrations that occur when the displacements in a slender rod or bar are in a plane normal to the length dimension

3.3
thickness ratio
ratio of the coating thickness to the substrate thickness

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