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Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for determining elastic modulus and bending strength of thick ceramic coatings

Céramiques techniques — Méthode d'essai relative à la détermination du module élastique et de la résistance en flexion des revêtements de céramique épais

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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.

The committee responsible for this document is ISO/TC 206, *Fine ceramics*.

Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for determining elastic modulus and bending strength of thick ceramic coatings

1 Scope

This document specifies a testing method for determining the elastic modulus and bending strength of thick ceramic coatings at ambient temperature by three-point bending tests. Procedures for test piece preparation, test modes and load rates, data collection and reporting are given.

This document applies to thick, brittle coatings on metal or ceramic substrates. This test method can be used for material research, quality control, 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 7500-1, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system*

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 stress to strain

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

3.2
bending strength
maximum tensile stress at fracture under bending load

3.3
modulus ratio
ratio of the coating modulus to the substrate modulus

3.4
thickness ratio
ratio of the coating thickness to the substrate thickness