
**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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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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

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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