
**Fine ceramics (advanced ceramics,
advanced technical ceramics) — Test
method for determining bonding
strength of ceramic coatings**

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, 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 www.iso.org/iso/foreword.html.

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for determining bonding strength of ceramic coatings

1 Scope

This document specifies the testing method for the determination of the bonding strength of ceramic coatings at ambient temperature by the compression tests on the cross-joined test pieces. Methods for test piece preparation, test mode and rate, data collection and reporting procedures are addressed.

This document applies primarily to any ceramic coatings, thick or thin, bonded onto substrates of various materials. The test method described can be used for materials 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

ISO 23114:2020

<https://standards.iteh.ai/catalog/standards/iso/25d360be-f076-4667-b1d4-ef4f3b3cb7c9/iso-23114-2020>

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:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

ceramic coating

coating of ceramics onto a substrate, via a physical or chemical technique, which creates an interface or boundary between the coating and the substrate

3.2

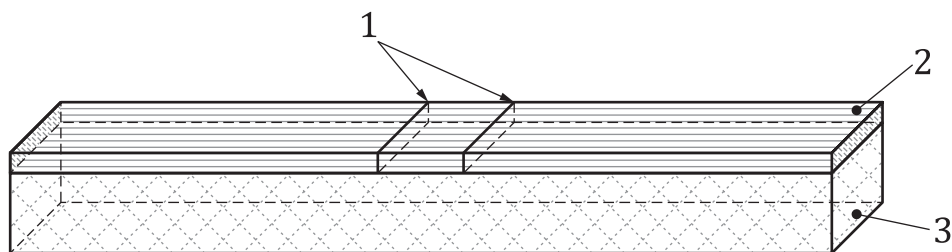
interface

smooth or rough boundary generated between coating and substrate that results from one or several bonding mechanisms, for example mechanical anchorage, interatomic or intermolecular bonds

3.3

cross-joined test piece

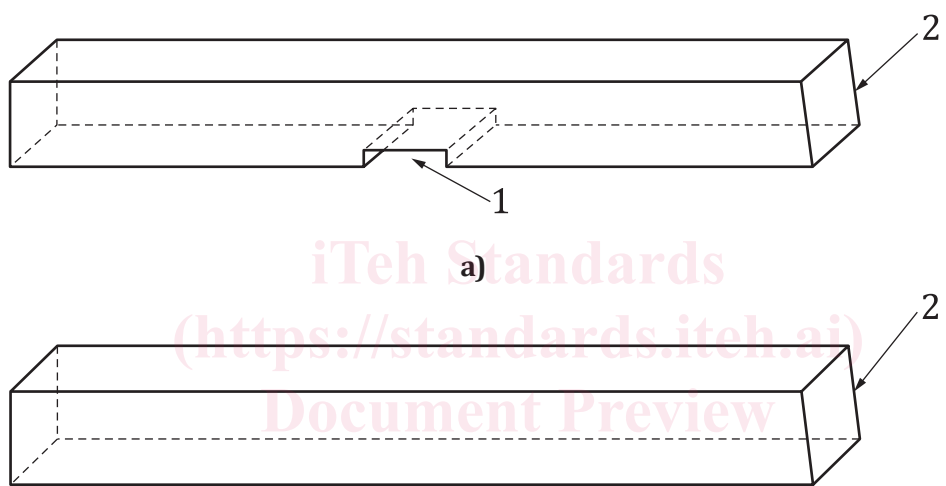
test piece prepared by joining coating sample (see [Figure 1](#) and [7.1.1](#)) and coupling bar (see [Figure 2](#) and [7.2.2](#)) perpendicularly to each other at middle, by means of high-strength adhesive, as shown in [Figure 3](#)



Key

- 1 notch
- 2 coating
- 3 substrate

Figure 1 — Schematic of the coating sample



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Key

- 1 groove
- 2 sloped end

Figure 2 — Schematic of the coupling bar

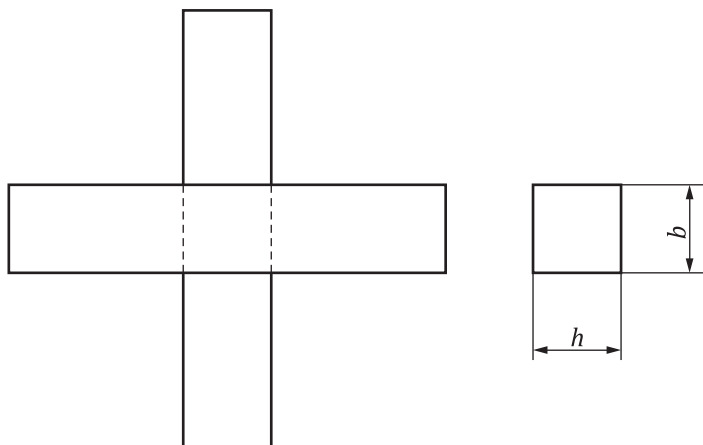


Figure 3 — Schematic of the cross-joined test piece