
Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for interfacial tensile and shear fatigue properties of ceramic joining loaded in constant amplitude at room temperature

Sample *Céramiques fines (céramiques avancées, céramiques techniques avancées) — Méthode d'essai relatives aux propriétés de tension interfaciale et de fatigue en cisaillement des jonctions céramiques à amplitude constante*

get full document from standards.iteh.ai



Sample Document

get full document from standards.iteh.ai



COPYRIGHT PROTECTED DOCUMENT

© ISO 2017, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

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

Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	2
5 Apparatus	3
6 Test pieces	5
6.1 Test-piece size.....	5
6.2 Test-piece preparation.....	5
6.2.1 General.....	5
6.2.2 Test-piece storage.....	5
6.2.3 Number of test pieces.....	5
7 Test procedure	6
7.1 Measurement of the test piece dimensions.....	6
7.2 Measurement of the interfacial tensile fatigue properties.....	6
7.3 Measurement of the interfacial shear fatigue properties.....	6
7.4 Residual properties.....	7
7.5 Test validity.....	7
8 Calculation of results	8
9 Test report	8

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 on 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 the following URL: www.iso.org/iso/foreword.html.

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

get full document from standards.iteh.ai

Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for interfacial tensile and shear fatigue properties of ceramic joining loaded in constant amplitude at room temperature

1 Scope

This document specifies a test method for determining interfacial tensile/tensile or shear/shear cyclic fatigue properties of ceramic-ceramic, ceramic-metal, and ceramic-glass joining loaded in the constant amplitude at room temperature. 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 ceramic materials, including monolithic fine ceramics and whisker-, fibre- or particle-reinforced ceramic composites. 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 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*

ISO 13124, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for interfacial bond strength of ceramic materials*

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:

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

3.1

cross-bonded test piece

test sample in the form of a symmetrical cross

Note 1 to entry: Prepared by joining two rectangular bars with the same shape and size, as described in ISO 13124.

3.2

average applied stress during cyclic fatigue

σ_m

average value between the maximum applied stress and the minimum applied stress during cyclic fatigue