ICS 81.060.30 SLOVENSKÁ TECHNICKÁ NORMA Október 2016

STN	**Jemná keramika (špeciálna keramika, špeciálna technická keramika). Skúšobné metódy pre keramické povlaky. Stanovenie lomovej deformácie (ISO 14604: 2012).**	**STN EN ISO 14604** 72 7532

Fine ceramics (advanced ceramics, advanced technical ceramics) - Methods of test for ceramic coatings - Determination of fracture strain (ISO 14604:2012)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 09/16

Obsahuje: EN ISO 14604:2016, ISO 14604:2012

Oznámením tejto normy sa ruší
STN EN 1071-9 (72 7516) z novembra 2009

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 14604

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Supersedes EN 1071-9:2009

English Version

Fine ceramics (advanced ceramics, advanced technical ceramics) - Methods of test for ceramic coatings - Determination of fracture strain (ISO 14604:2012)

Céramiques techniques - Méthodes d'essai des revêtements céramiques - Détermination de la déformation à la rupture (ISO 14604:2012)

Hochleistungskeramik - Verfahren zur Prüfung keramischer Schichten - Bestimmung der Bruchdehnung (ISO 14604:2012)

This European Standard was approved by CEN on 25 March 2016.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

The text of ISO 14604:2012 has been prepared by Technical Committee ISO/TC 206 “Fine ceramics” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 14604:2016 by Technical Committee CEN/TC 184 “Advanced technical ceramics” the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2016, and conflicting national standards shall be withdrawn at the latest by October 2016.

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Endorsement notice

The text of ISO 14604:2012 has been approved by CEN as EN ISO 14604:2016 without any modification.

INTERNATIONAL STANDARD

ISO 14604

First edition
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Fine ceramics (advanced ceramics, advanced technical ceramics) — Methods of test for ceramic coatings — Determination of fracture strain

Céramiques techniques — Méthodes d'essai des revêtements céramiques — Détermination de la déformation à la rupture

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 14604 was prepared by Technical Committee ISO/TC 206, *Fine ceramics*.

Introduction

The fracture strain of a coating is a critical factor often determining the performance of a coated product. Clearly, if stressed either directly or due to thermal effects (thermal expansion coefficient mismatch between the coating and substrate) coating cracking can occur if the critical fracture stress/strain is exceeded, and in many cases the effectiveness of the coating will be reduced. For example, corrosion-resistant coatings loose their protective character if cracking occurs, and optical coatings become ineffective when cracked. In many cases, cracking is the first stage of a much more serious form of failure in which large areas of the coating can spall.

This International Standard describes a method for the determination of fracture strain using a technique of applying stresses to a coupon of material by a uniaxial tensile or compressive test or a beam bending test where the initiation of fracture in the coating is determined using an acoustic emission method.

The extent to which coated components can withstand external applied loads is an important property in the application of any coated system, and usually the failure stress is required. For calculation of the stress, both the fracture strain and Young's modulus of the coating should be known. ISO 14577-4:2007[1] can be used to measure Young's modulus by depth-sensing indentation, but there are other methods involving flexure and impact excitation that may also be applied (References [2], [3]).

INTERNATIONAL STANDARD ISO 14604:2012(E)

Fine ceramics (advanced ceramics, advanced technical ceramics) — Methods of test for ceramic coatings — Determination of fracture strain

1 Scope

This International Standard describes a method of measuring the fracture strain of ceramic coatings by means of uniaxial tension or compression tests coupled with acoustic emission to monitor the onset of cracking of the coating. Tensile or compressive strains can also be applied by flexure using four-point bending. Measurements can be made in favourable cases at elevated temperatures as well as at room temperature.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 10002-1, *Metallic materials — Tensile testing — Part 1: Method of test at ambient temperature*

EN 10002-5, *Metallic materials — Tensile testing — Part 5: Method of test at elevated temperature*

ISO 12106, *Metallic materials — Fatigue testing — Axial-strain-controlled method*