INTERNATIONAL STANDARD

ISO 17561

Second edition
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Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for elastic moduli of monolithic ceramics at room temperature by sonic resonance

Céramiques techniques — Méthode d'essai des modules d'élasticité des céramiques monolithiques, à température ambiante, par résonance acoustique

Reference number
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Foreword

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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).

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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*.

This second edition cancels and replaces the first edition (ISO 17561:2002), which has been technically revised. It also incorporates the Technical Corrigendum ISO 17561:2002/Cor.1:2007.

Fine ceramics (advanced ceramics, advanced technical ceramics) — Test method for elastic moduli of monolithic ceramics at room temperature by sonic resonance

1 Scope

This International Standard describes the method of test for determining the dynamic elastic moduli of fine ceramics at room temperature by sonic resonance. This International Standard is for fine ceramics that are elastic, homogeneous and isotropic.[2]

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 13385 (all parts), *Geometrical product specifications (GPS) — Dimensional measuring equipment*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
dynamic elastic moduli
adiabatic elastic moduli, which are dynamic Young's modulus, shear modulus and Poisson's ratio

Note 1 to entry: Adiabatic elastic moduli are obtained by the sonic resonance method.

3.1.1
Young's modulus
E
elastic modulus in tension or compression

$$E = \sigma / \varepsilon$$

where

E is Young's modulus in pascals;

σ is the tension or compression stress in pascals;

ε is the tension or compression strain.

3.1.2
shear modulus
G
elastic modulus in shear or torsion

$$G = \tau / \gamma$$