
**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*



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Foreword

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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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 17561 was prepared by Technical Committee ISO/TC 206, *Fine ceramics*.

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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

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 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 3611, *Micrometer callipers for external measurement*

ISO 6906, *Vernier callipers reading to 0,02 mm*

3 Terms and definitions

For the purposes of this International Standard, 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 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

$$G = \tau / \gamma$$