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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 ISO 17561:2002(E)

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Foreword

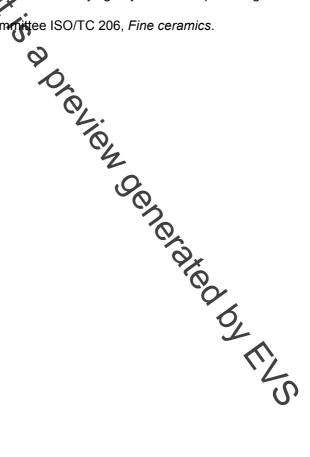
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ISO 17561 was prepared by Technical Committee ISO/TC 206, Fine ceramics.



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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.

OT THE

ISO 3611, Micrometer callipers for external measure ment

ISO 6906, Vernier callipers reading to 0,02 mm

Terms and definitions 3

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

3.1

dynamic elastic moduli

Adiabatic elastic moduli are obtained by the sonic resonance method. adiabatic elastic moduli, which are dynamic Young's modulus, shear modulus and Poisson's ratio

NOTE

3.1.1

Young's modulus (E)

elastic modulus in tension or compression

$$E=\sigma/\varepsilon$$

where

- is Young's modulus in pascals; E
- is the tension or compression stress in pascals; σ
- is the tension or compression strain. ε

3.1.2

shear modulus (G)

elastic modulus in shear or torsion

 $G = \tau / \gamma$