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Fine ceramics (advanced ceramics, advanced technical ceramics) — Testing method for macro-heterogeneity in microstructure

Céramiques techniques — Méthode d'essai relative aux macro-hétérogénéités dans la microstructure

Reference number
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Foreword

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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 WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 206, *Fine ceramics*.

Fine ceramics (advanced ceramics, advanced technical ceramics) — Testing method for macro-heterogeneity in microstructure

1 Scope

This International Standard specifies a test method for determining macro-heterogeneities within the microstructure of fine ceramics that are above a certain size within the volume of the material and affect materials mechanical strength properties. This method is limited to fine ceramics with a porosity of less than 10 vol% and that are transparent for visible light in the form of a thin specimen.

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/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

3 Terms and definitions

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

3.1
coarse macro-heterogeneity
macro-heterogeneity, e.g. agglomerates, pores, inclusion, grains, with a size above 10 µm significantly affecting the mechanical strength

3.2
coarse macro-heterogeneity distribution
size distribution of coarse macro-heterogeneities

3.3
equivalent circle diameter
diameter of a circle having the same area as the coarse macro-heterogeneity

4 Principle

A variety of ceramics are composed of transparent materials and their macro-heterogeneity is observed in the transmission mode on a thin specimen.

5 Apparatus

5.1 Microscope, enabling the observation in the transmission mode. The microscope shall have a maximum magnification of the objective lens of ×10 and an illumination system with an adjustable aperture. A certified graticule shall be used for the calibration of the magnification.

5.2 Cutting machine, suitable machine capable of cutting the ceramics.

5.3 Grinding machine, suitable machine capable of grinding the ceramics.