
**Fine ceramics (advanced ceramics,
advanced technical ceramics) —
Methods of test for reinforcements —
Determination of tensile properties of
filaments at ambient temperature**

*Céramiques techniques — Méthodes d'essai pour renforts —
Détermination des propriétés en traction du filament à température
ambiante*

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Foreword

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Fine ceramics (advanced ceramics, advanced technical ceramics) — Methods of test for reinforcements — Determination of tensile properties of filaments at ambient temperature

1 Scope

This document specifies the conditions for the determination of tensile properties of single filaments of ceramic fibre such as tensile strength, Young modulus and fracture strain. The method applies to continuous ceramic filaments taken from tows, yarns, braids and knittings, which have strain to fracture less than or equal to 5 %.

The method does not apply to carbon fibres that exhibit nonlinear stress-strain curve. The method does not apply to checking the homogeneity of strength properties of fibres, nor to assessing the effects of volume under stress. Statistical aspects of filament failure are not included.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 7500-1, *Metallic materials — Calibration and verification of static uniaxial testing machines — Part 1: Tension/compression testing machines — Calibration and verification of the force-measuring system*

ISO 19634, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Ceramic composites — Notations and symbols*

ISO 20501, *Fine ceramics (advanced ceramics, advanced technical ceramics) — Weibull statistics for strength data*

EN 1007-1, *Advanced technical ceramics — Ceramic composites — Methods of test for reinforcements — Part 1: Determination of size content*

EN 1007-3, *Advanced technical ceramics — Ceramic composites — Methods of test for reinforcements — Part 3: Determination of filament diameter and cross-section area*

3 Terms, definitions and symbols

For the purposes of this document, the terms, definitions and symbols given in ISO 19634 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at <http://www.electropedia.org/>

— ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

gauge length

L_0

initial distance between two reference points on the filament