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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 43307-2023

**Fine ceramic fibers - Determination of tensile properties of
filaments at room temperature**

精细陶瓷纤维 单丝室温拉伸性能的测定

(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting:

This document is modified to adopt ISO 19630:2017 "Test methods for fine ceramics (advanced ceramics, advanced technical ceramics) reinforced materials" Determination of tensile properties of monofilament at room temperature:

Compared with ISO 19630:2017, this document has made the following structural adjustments:

---Deleted 9:4:1 in ISO 19630:2017:

The technical differences between this document and ISO 19630:2017 and their reasons are as follows:

---In order to be more in line with my country's technical conditions and existing relevant standards, the normatively cited GB/T 3291.3, GB/T 18374, JC/T 2404 replaces ISO 19634 (see Chapter 3);

---In order to be more in line with my country's technical conditions and existing relevant standards, it has been replaced with the normatively cited GB/T 16825.1 ISO 7500-1 (see 5.1);

---In order to be more in line with my country's technical conditions and existing relevant standards, the normatively quoted GB/T 34520.1 has been replaced EN1007-1, GB/T 40005 replaces ISO 20501 (see Chapter 8);

---In order to be more in line with the actual application situation in my country and make the loading system flexibility more accurate, the number of testing of the loading system flexibility is changed from 3 times Changed to at least 5 times (see Chapter 8);

---In order to be more in line with my country's technical conditions and existing relevant standards, the normatively quoted GB/T 34520.2 has been replaced EN1007-3 (see 9.3);

---In order to be more consistent with actual application conditions, the fracture strain

calculation for linear elastic behavior until failure is changed from the content of the note to Requirement clauses (see 10.5):

The following editorial changes have been made to this document:

---In order to coordinate with the existing standards, the name of the standard is changed to "Determination of Room Temperature Tensile Properties of Fine Ceramic Fiber Monofilaments";

---Deleted Note 3 and Figure 2 of Chapter 7 of ISO 19630:2017, which are applicable to the layout diagram under high temperature testing:

Please note that some content in this document may be subject to patents: The publisher of this document assumes no responsibility for identifying patents:

1 Scope

This document describes the method for determining the room temperature tensile properties of fine ceramic fiber monofilaments, including the principles, testing equipment and materials for performance determination:

Materials, samples, sample preparation, sample quantity, test process, result calculation, test report, etc., stipulates the tensile properties of fine ceramic fiber monofilaments such as Test conditions and test methods for tensile strength, elastic modulus, breaking strain, etc:

This document applies to continuous ceramic fibers obtained from tapes, yarns, tows and braids with a breaking strain of not more than 5%:

This document is not applicable to carbon fibers that exhibit nonlinear tensile stress-strain curves and is not suitable for testing the uniformity of fiber strength properties:

property, and is not suitable for evaluating the effect of stress on fiber volume:

This document does not provide statistics on damaged fibers:

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text: Among them, the dated quotations for undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document:

GB/T 3291.3 Textile materials properties and test terminology Part 3: General GB/T 16825.1 Inspection and calibration of static uniaxial testing machines for metallic materials Part 1: Tensile and/or compression testing machines Inspection and calibration of force

systems (GB/T 16825.1-2022, ISO 7500-1:2018, IDT) GB/T 18374 Terminology of reinforced materials GB/T 34520.1 Test methods for continuous silicon carbide fibers Part 1: Tow sizing rate GB/T 34520.2 Test methods for continuous silicon carbide fibers Part 2: Single fiber diameter GB/T 40005 Weibull statistical analysis method for strength data of fine ceramics (GB/T 40005-2021, ISO 20501:

2019,MOD)

JC/T 2404 Test method for tensile properties of continuous fiber reinforced ceramic matrix composites at room temperature

3 Terms and definitions

The following terms and definitions as defined in GB/T 3291.3, GB/T 18374 and JC/T 2404 apply to this document:

Gaugelength

The initial distance between two reference points on the mounting plate axis:

sample length testspecimenlength the distance between the two clamping points of the clamp holding the sample when the sample is straightened: