

ICS 81.060.30

CCS Q 30



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

GB/T 47593-2026

**Continuous fibre-reinforced ceramic matrix composites - Test
method for open-hole tensile strength at room temperature**

连续纤维增强陶瓷基复合材料 室温开孔拉伸强度试验方法

(English Translation)

Issued on: May 25, 2026

Implemented on: December 1, 2026

Issued by: State Administration for Market Regulation

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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 14603:2012 "Fine ceramics (advanced ceramics, advanced technical ceramics) - Continuous fiber reinforced ceramic matrix".

A method for testing the room temperature open-pore tensile strength of composite materials.

Compared with ISO 14603:2012, this document has undergone many structural adjustments. A table comparing the changes in structural numbering between the two documents is provided.

See Appendix A.

This document differs significantly from ISO 14603:2012. The relevant clauses are indicated in vertical margins.

Single lines (|) are indicated. A summary of these technical differences and their causes can be found in Appendix B.

The following editorial changes have been made to this document.

---To align with existing standards, the standard name has been changed to "Tensile Strength Test at Room Temperature with Open Pores for Continuous Fiber Reinforced Ceramic Matrix Composites".

method";

---The references in ISO 14603:2012 have been changed[1];

---Appendix A (informative) "Comparison of Structure Numbers in this Document with ISO 14603:2012" has been added;

---Added Appendix B (Informative) "Technical Differences between this Document and ISO 14603:2012 and the Reasons Therefor".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Building Materials Federation.

This document is under the jurisdiction of the National Technical Committee on Standardization of Industrial Ceramics (SAC/TC194).

1 Scope

This document specifies the terminology and definitions, principles, and instruments for the test method of room temperature open-pore tensile strength of continuous fiber reinforced ceramic matrix composites.

Equipment, samples, test conditions, test procedures, result calculations, and test reports.

This document applies to the measurement of tensile strength of unidirectional, bidirectional, and multidirectional continuous fiber reinforced ceramic matrix composites with open holes along any reinforcement direction.

This method is applicable to two different purposes. first, material characterization, including material selection; and second, determining allowable limits in the design of perforated components.

stress.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

GB/T 16825.1 Inspection and calibration of static uniaxial testing machines for metallic materials - Part 1: Tensile and/or compressive testing machines Inspection and calibration of force measurement systems (GB/T 16825.1-2022, ISO 7500-1:2018, IDT) GB/T 21389 Vernier, dial indicator and digital calipers

3 Terms and Definitions

The following terms and definitions apply to this document.

gauge length

The length is the total length of the sample minus the length of the clamps at both ends.

initial cross-section area S_0 the cross-sectional area of the sample to be tested (ignoring pores).

Tensile strain

The strain is measured at a given location on the sample surface using a strain gauge.

maximum tensile force F_m the highest tensile force recorded when the sample fails during a

tensile test.