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

GB/T 45763-2025

**Fine ceramics - Test method for flexural strength of ceramic
thin plates at room temperature - Three-point bending or
four-point bending**

精细陶瓷 陶瓷薄板室温弯曲强度试验方法 三点弯曲或四点弯曲法

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is modified to adopt ISO 23242:2020 "Fine ceramics (advanced ceramics, advanced technical ceramics) - Tests by three-point or four-point Test method for flexural strength of integral ceramic sheets by point bending.

Compared with ISO 23242:2020, this document has many structural adjustments. The structural number changes between the two documents are shown in the table below. See Appendix A. This document has many technical differences compared to ISO 23242:2020.

A list of these technical differences and their causes is given in Appendix B. The following editorial changes have been made to this document.

--- To coordinate with the existing standard, the name of the standard is changed to "Test method for flexural strength of fine ceramic thin plate at room temperature - three-point bending or four-point bending method;

--- Added the sources of terms and definitions in 3.1, 3.2 and 3.3;

--- Deleted Note 2 in 3.2;

--- Added the index symbol description in Figure 1;

--- "Figure 3 Sample size" is revised to "Figure 3 Sample size diagram" and "Table 2 Sample size classification table", and Table 2 is revised to Table 3;

--- Added Appendix A (informative) "Comparison of this document with ISO 23242:2020 structure numbers";

--- Added Appendix B (informative) "Technical differences between this document and ISO 23242:2020 and their causes";

--- Added Appendix E (informative) "Weibull scaling factor".

1 Scope

This document describes a method for determining the flexural strength of thin ceramic sheets using the three-point or four-point bending method at room temperature.

This document is applicable to homogeneous bulk ceramics with a thickness of 0.2mm~1.0mm and various macro-homogeneous whisker or particle reinforced ceramic matrices.

Composite materials. This document does not apply to ceramic matrix composites containing continuous fiber reinforcement.

This document is suitable for use in material research and development, quality control, performance characterization, and reliability data collection.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 1182 Product Geometrical Technical Specification (GPS) Geometrical Tolerances - Shape, Orientation, Position and Runout Tolerances (GB/T 1182-2018, ISO 1101:2017, MOD)

GB/T 1216 Outside micrometer

GB/T 6569 Test method for flexural strength of fine ceramics (GB/T 6569-2006, ISO 14704:2000, MOD)

GB/T 16825.1 Inspection and calibration of static uniaxial testing machines for metallic materials Part 1: Tension and/or compression testing machines Inspection and calibration of force measurement systems (GB/T 16825.1-2022, ISO 7500-1:2018, IDT)

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 Flexural strength

The maximum stress at which a particular elastic plate breaks when subjected to bending load. [Source: GB/T 6569-2006, 3.1, modified]

3.2 Three-point bendingthree-pointflexure

A load-bearing structure for measuring bending strength, in which an upper roller loads a sample at the middle position between two supporting rollers.

Note: See Figure 1a) and Table 1. [Source: GB/T 6569-2006, 3.5, with modifications]

3.3 Four-point bendingfour-pointflexure

A load-bearing structure for measuring bending strength, in which two rollers symmetrically distributed between two supporting rollers load the sample.

Note: See Figure 1b) and Table 1. [Source: GB/T 6569-2006, 3.2, with modifications]