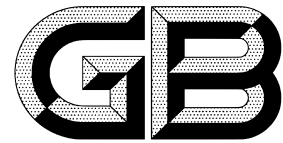


ICS 81.060.20

CCS Q 32



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

GB/T 8489-2006

Replacing GB/T 8489-1987

**Test method for compressive strength of fine ceramics
(advanced ceramics, advanced technical ceramics)**

精细陶瓷压缩强度试验方法

Issued on: February 22, 2006

Implemented on: September 1, 2006

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine of PRC;
National Standardization Administration..**

Table of Contents

Foreword

1 Scope

2 Normative references

3 Terms and definitions

4 Test equipment

5 Specimens

6 Test method

7 Calculation of results

8 Test report

Appendix A A.1 Arrange the measured compressive strength data in ascending order:

Foreword

This standard adopts the Japanese standard JIS R 1608-2003 "Testing methods for compressive strength of fine ceramics" with modifications.

This standard is a revision of GB/T 8489-1987 "Testing method for compressive (crushing) strength of high performance ceramics".

The main differences between this standard and JIS R 1608-2003 are as follows:

- CHANGE "high-performance ceramics" to "fine ceramics"; ADD the "functional ceramics" to the scope of application (see Chapter 1).
- DELETE the "loading plate" from the Terms (see Chapter 3).
- ADD the specifications regarding the testing machine load range at the time of specimen fracture (see 4.1).
- ADD the specifications for the dimensions, roughness, hardness, parallelism of the upper and lower platens (see 4.2).
- ADD the specifications regarding the dimensions, roughness, hardness, parallelism, usage of contact blocks (see 4.3).
- ADD the specifications regarding the thickness and material of spacers (see 4.4).
- ADD the specifications for the accuracy of measuring instruments (see 4.5).
- ADD the sampling specifications, changing the number of specimens per set to 10 (see 5.1).
- ADD the instructions for the preparation of piezoelectric ceramic specimens (see 6.1).
- ADD a schematic diagram of square prismatic specimens (see Figure 1).
- ADD a schematic diagram of a lower platen with an arc-shaped surface (see Figure 2).
- CHANGE the crosshead displacement rate to 0.2 mm/min (see 6.3).
- ADD a test method for piezoelectric ceramics; DELETE the provision regarding the reuse of loading plates (see 6.4).
- ADD the formula for calculating the average value (see 7.2).
- DELETE the original test report content and REWRITE it (see Chapter 8).
- DELETE the original appendix; ADD the specifications for the rounding of numerical values (see Appendix A).

This standard replaces GB/T 8489-1987. The main changes compared to the previous version are as follows:

- CHANGE the title from "engineering ceramics" to "fine ceramics".

1031 regarding surface roughness parameters and their values (Chapter 2 of the 1987 edition; Chapter 2 of this edition).

definition of compressive strength, adding a definition for compressive failure (Chapter 3 of the 1987 edition; Chapter 3 of this edition).

parameters to facilitate testing; ADD schematic diagrams of the specimen and loading method (Chapter 5 of the 1987 edition; Chapter 5 of this edition).

- SPECIFY new specimen dimensions, which use smaller samples than the original standard, based on the Japanese Industrial Standard JIS R 1608-2003 and actual practices in ceramic compression testing in China, to facilitate testing on standard universal testing machines (Clause 5.2 of the 1987 edition; Clause 5.2 of this edition).

- CHANGE the "Test procedure" to "Test method" (Chapter 6 of the 1987 edition; Chapter 6 of this edition), adding two explanatory notes (Clauses 6.5 and 6.6 of this edition).

- ADD the formula for calculating the mean value (Clause 7.2 of this edition).
edition; Clause 7.3 of this edition).

- ADD basic requirements regarding the number of samples for statistical data analysis (see Clause 7.4).

- ADD the requirements to the test report, regarding specimen shape, material, dimensions, surface roughness, preparation conditions (Chapter 8 of the 1987 edition; Chapter 8 of this edition).

Appendix A of this standard is normative.

This standard was proposed by the China Building Materials Industry Association.

This standard shall be under the jurisdiction of the National Technical Committee on Industrial Ceramics.

Drafting organizations of this standard: China Building Materials Academy; Shenzhen New Sansi Metrology Technology Co., Ltd.

Drafting personnel of this standard: Bao Yiwang, Cao Zengchen, Ma Juanrong, Qiu Tuo, Lei Qing'an, Zhou Liwei.

1 Scope

This standard specifies the equipment, specimens, test procedures, result processing for determining the compressive strength of fine ceramics.

This standard applies to the determination of the compressive strength of fine ceramics at room temperature; it also applies to the determination of the compressive strength of