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

GB/T 46588-2025

**Fine ceramics - Determination of compaction properties of
powders**

精细陶瓷 粉体压实性能的测定

(English Translation)

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Table of Contents

Foreword
1 Scope
2 Normative references
3 Terms and Definitions
4 Principles
5 Symbols and Markings

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 equivalent to ISO 17172:2014 "Fine ceramics (advanced ceramics, advanced technical ceramics) - Measurement of compaction properties of ceramic powder".

Certainly".

This document includes a new chapter on "Terms and Definitions".

The following minimal editorial changes have been made to this document.

---To align with existing standards, the standard title has been changed to "Determination of Compaction Properties of Fine Ceramic Powders";

---Added explanations of units for symbols in formula (1) to conform to the rules for writing Chinese standards (see 9.1).

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 describes the determination of the effects of applying a uniaxial compressive load to granulated or ungranulated ceramic powder under specific conditions using a closed mold.

Test methods for the degree of densification of the compact.

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.

Note: GB/T 27025-2019 General requirements for the competence of testing and calibration laboratories (ISO/IEC 17025:2017, IDT)

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4 Principles

Granulated or ungranulated ceramic powders are uniaxially compressed in a closed mold by bidirectional pressing (mode 1) or unidirectional pressing (mode 2).

Ceramic powder samples can be pressed under a single specified pressure or under a series of specified pressures. After demolding, the surface of the pressed ceramic powder compact is measured.

Observe the density.

Test results under a single specified pressure characterize the compaction performance of ceramic powder under that specified pressure. Test results under a series of specified pressures...

The test results were used to plot the curve of apparent density as a function of compaction pressure.

5 Symbols and Markings

Table 1 lists the symbols, names, and units involved in this document.

Table 1. List of symbols, names, and units used in this document

Symbol Name Unit

ρ_{a} Apparent density (g/cm^3) m Ceramic powder compact mass g V Ceramic powder compact volume (cm^3) If the apparent density is measured only at a specific pressure, for example, the apparent density measured at 100 MPa, it is denoted by the symbol

$\rho_{\text{H}_2\text{O}}(100)$.