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

GB/T 5073-2022

Replacing GB/T 5073-2005

Refractory products - Determination of creep in compression

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Table of Contents

foreword

1 Scope

2 Normative references

3 Terms and Definitions

4 principles

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 replaces GB/T 5073-2005 "Creep Test Method for Refractory Materials". Compared with GB/T 5073-2005, except for structural

In addition to adjustments and editorial changes, the main technical changes are as follows.

- a) The scope has been changed (see Chapter 1, Chapter 1 of the.2005 edition);
- b) The principle has been changed (see Chapter 4, Chapter 4 of the.2005 edition);
- c) Changed the schematic diagram of the measuring device (see 5.1, 5.1 of the.2005 edition);
- d) Changed the description of the pressure rod (see 5.1.3, 5.1.3 of the.2005 edition);
- e) Changed the description of the test furnace (see 5.2, 5.2 of the.2005 edition);
- f) Changed the division value of the measuring instrument (see 5.3.4, 5.3.4 of the.2005 edition);
- g) Changed the regulations on thermocouples (see 5.4.3, 5.4.3 of the.2005 edition);
- h) Sampling and preparation of test pieces have been added (see Chapter 6);
- i) Delete the load provisions for unshaped materials (see 7.2 of the.2005 edition);
- j) The temperature difference requirements for temperature control thermocouples and temperature measurement thermocouples in the constant temperature stage have been added (see 7.3);
- k) Change the creep rate difference between the 5th hour and the end of the test, and increase the deformation at which the maximum expansion point temperature occurs before

the test temperature

Quantitative reporting (see 8.4, 8.4 of the 2005 edition).

This document is modified to adopt ISO 3187:1989 "Refractory Materials Creep Test Method".

Compared with ISO 3187:1989, this document has more structural adjustments.

Comparison list of structure number changes between two files

See Appendix A.

Compared with ISO 3187:1989, there are more technical differences in this document, and vertical single

Lines (|) are marked. See Appendix B for a list of these technical differences and their causes.

The following editorial changes have been made to this document.

--- Deleted the informative appendix A "Placement of the measuring device (upper or lower part of the test furnace)".

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

1 Scope

This document specifies the principles, equipment, samples, and test procedures for the compression creep test methods for dense shaped refractory products and shaped insulating refractory products.

procedures, result calculations and test reports.

This document is applicable to the determination of compressive creep of dense shaped refractory products and shaped insulating refractory products.

The test device in this document is suitable for the determination of compressive creep below 1600°C.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references

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

GB/T 5989 Test method for softening temperature under load of refractory materials
Differential heating method (GB/T 5989-2008, ISO 1893.

2005, IDT)

GB/T 7321 Sample preparation method for shaped refractory products

GB/T 8170 Numerical rounding off rules and expression and determination of limit values

GB/T 10325 Acceptance Sampling Inspection Rules for Shaped Refractory Products (GB/T 10325-2012, ISO 5022.1979, NEQ)

GB/T 16839.1 Thermocouple Part 1. Electromotive force specification and tolerance (GB/T 16839.1-2018, IEC 60584-1.

2013, IDT)

GB/T 18930 Terminology for refractory materials (GB/T 18930-2020, ISO 836.2001, MOD)

GB/T 21389 Vernier, strap table and digital calipers

3 Terms and Definitions

The following terms and definitions defined in GB/T 18930 apply to this document.

3.1

pressure creep creep in compression

The isothermal deformation of a refractory material over time under a constant load.

3.2

The temperature at which the creep rate of the specimen under load equals the expansion rate during the heating process.

4 principles

A sample of a given size is heated at a certain heating rate under a constant load and reaches the set temperature, and the temperature of the sample is recorded at a constant temperature.

The amount of deformation in the height direction at temperature and the percentage change relative to the original height of the specimen over time.

Note. The difference between the percentage change of the first 5h and the percentage change at the end of the test is usually recorded.