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

GB/T 22459.10-2025

**Refractory mortars - Part 10: Determination of permanent
change in dimensions on heating**

耐火泥浆 第10部分：加热永久线变化试验方法
(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 Part 10 of GB/T 22459 "Refractory Slurries". GB/T 22459 has been published in the following parts.

- Part 1: Test method for consistency (cone penetration method);
- Part 2: Test method for consistency (jump table method);
- Part 3: Bonding time test method;
- Part 4: Test method for flexural bond strength at room temperature;
- Part 5: Particle size distribution (sieve analysis) test method;
- Part 6: Test method for moisture content of pre-mixed mud;
- Part 7: Other performance test methods;
- Part 8: Test method for water seepage;
- Part 9: Test method for shear bond strength at room temperature;
- Part 10: Test method for permanent linear changes caused by heating.

This document is modified to adopt ISO 13765-7:2021 "Refractory slurries - Part 7: Test method for permanent linear changes caused by heating".

Compared with ISO 13765-7:2021, this document has many structural adjustments. A comparison of the structural number changes between the two documents See Appendix A for the table.

This document has many technical differences compared to ISO 13765-7:2021.

A list of these technical differences and their reasons is given in Appendix B.

The following editorial changes were made to this document.

--- In order to coordinate with the existing standards, the name of the standard is changed to "Refractory slurries Part 10: Test method for permanent linear changes during heating";

--- The title of Chapter 5 is changed to "Instruments and Materials";

--- In order to coordinate with the existing standards, the "the distance between the two marking points after burning is recorded as L2" in 7.5 of ISO 13765-7:2021 is changed to this article in item 7.6, "the distance between the two marking points after burning is recorded as Lt".

Introduction

Refractory slurry is generally used as the joint material of refractory masonry to make the masonry form a tight whole to resist external damage and prevent gas, the intrusion of molten liquid. Masonry joints are usually the weakest link of masonry and in most cases fail before the masonry. Therefore, the quality of refractory slurry is very important.

It is closely related to the overall life of the masonry.

The heating permanent linear change of refractory slurry is an important indicator to characterize the high temperature volume stability of refractory slurry, which directly affects the quality of refractory masonry.

The amount will eventually affect the service life and safety of the refractory masonry.

GB/T 22459 is intended to describe the test methods for determining the properties of refractory slurries, and parts 1 to 6 are modified to adopt ISO 13765-1~ISO 13765-6, Parts 7~9 have no corresponding relationship with ISO 13765, and Part 10 is modified and adopted ISO 13765-7:2021.

GB/T 22459 is intended to consist of 10 parts. This document is Part 10 and together with the other 9 parts constitutes the refractory slurry test Method standard system.

--- Part 1: Consistency test method (cone penetration method), the purpose is to determine the consistency of refractory slurries;

--- Part 2: Consistency test method (jump table method), aimed at determining the consistency of refractory slurries;

--- Part 3: Bonding time test method, the purpose of which is to determine the time required for the bonding stability of refractory mortar bonded joints when laying refractory masonry time;

--- Part 4: Test method for flexural bond strength at room temperature, aimed at determining the flexural strength of refractory mortar bonded joints after refractory masonry construction Bond strength;

--- Part 5: Particle size distribution (sieve analysis) test method, the purpose is to determine the gradation of refractory slurry particles;

--- Part 6: Test method for moisture content of pre-mixed mud, the purpose is to determine the moisture content of pre-mixed mud;

--- Part 7: Other performance test methods, aimed at determining the refractoriness of refractory slurry, high temperature flexural bond strength, room temperature flexural strength Degree, thermal expansion, thermal conductivity, etc.;

--- Part 8: Water bleeding test method, the purpose is to determine the water bleeding performance of refractory slurry when it is static or under a certain load;

--- Part 9: Test method for shear bond strength at room temperature, the purpose is to determine the strength of the refractory mortar bond joints after refractory mortar masonry is built.

Shear bond strength;

--- Part 10: Test method for permanent linear change after heating, the purpose is to determine the stability of the volume of refractory mortar after refractory mortar masonry Qualitative.

Refractory Slurry

Part 10: Test method for permanent linear changes by heating

1 Scope

This document describes the principle, instrumentation and materials, sampling, test procedures, result calculation and other aspects of the test method for permanent linear changes in refractory slurries during heating.

Calculation and presentation, precision and test report.

This document is applicable to the testing of refractory slurries combined with water and aqueous solutions.

This document is not applicable to the testing of refractory slurries combined with organic solvents such as resins.

2 Normative references

The contents of the following documents constitute 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 4513.2 Monolithic refractory materials Part 2: Sampling GB/T 8170 Rules for rounding off values and expression and determination of limit values GB/T 18930 Terminology of Refractory Materials GB/T 22459.1 Refractory slurry Part 1: Test method for consistency (cone penetration method) (GB/T 22459.1-2022, ISO 13765-1:2004, MOD) GB/T 22459.2 Refractory slurry Part 2: Test method for consistency (jump table method) (GB/T 22459.2-2022, ISO 13765-2.

2004, MOD)

3 Terms and definitions

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

4 Principle

Under the isolation of permeable materials, fill the space between two refractory bricks with refractory mud. After the bonding is stable, the wet refractory mud will be formed.

The slurry flakes are separated from the brick surface to form a refractory slurry test block, which is then heated and measured.

The dimensions before and after heating are used to obtain the permanent linear changes of the refractory slurry during heating.

5 Instruments, Equipment and Materials

5.1

Mixer. Use the mixer specified in GB/T 22459.1 or GB/T 22459.2.

5.2

Balance. Graduation value shall not exceed 1g.

5.3

Cutting tools. such as paper cutter.