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

GB/T 6900-2025

Replacing GB/T 6900-2016

Chemical analysis of alumino-silicate refractories

铝硅系耐火材料化学分析方法

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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 replaces GB/T 6900-2016 "Chemical Analysis Methods for Aluminosilicate Refractory Materials". Compared with GB/T 6900-2016, except for the structural...

Aside from structural adjustments and editorial changes, the main technical changes are as follows.

- a) Added a "warning" message;
- b) The provisions regarding the measurement range have been removed (see Chapter 1, Chapter 1 of the 2016 edition);
- c) A new chapter on "Terms and Definitions" has been added (see Chapter 3);

- d) The particle size requirements for sample grinding have been changed (see 5.2, 4.2 in the 2016 version);
- e) Increased requirements for reagents and water (see 6.1.1);
- f) Added provisions for constants (see 6.1.2);
- g) The method for determining loss on ignition has been changed (see Chapter 7, Chapter 7 of the 2016 edition);
- h) The range for the determination of titanium dioxide content using the diantipyrene methane spectrophotometric method has been modified (see 11.1, 2016 edition of 11.1);
- i) The rules for plotting the diantipyrene methane spectrophotometric standard curve have been changed (see 11.1.5, 8.1.5 of the 2016 edition);
- j) The rules for taking the median of analytical results in the analytical value acceptance procedure have been changed (see Appendix A, Appendix A of the 2016 edition).

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 and is under the jurisdiction of the National Technical Committee on Standardization of Refractory Materials (SAC/TC193).

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This document was first published in 1986, revised for the first time in 2006, revised for the second time in 2016, and this is the third revision.

Chemical Analysis Methods for Aluminosilicate Refractory Materials Warning---Personnel using this document should have practical experience in formal laboratory work, be familiar with the physicochemical properties of strong acids and bases, and be aware of sample pretreatment.

High temperatures, strong acids, and strong alkalis during the processing are all hazardous sources, and workers must master the safe operating procedures. This document does not

list all possible hazards.

Regarding safety issues, users are responsible for taking appropriate safety and health measures and ensuring compliance with relevant national regulations.

1 Scope

This document describes the loss on ignition (LOI), silicon dioxide (SiO₂), aluminum oxide (Al₂O₃), and iron oxide in aluminosilicate refractories.

Fe₂O₃, titanium dioxide (TiO₂), calcium oxide (CaO), magnesium oxide (MgO), potassium oxide (K₂O), sodium oxide (Na₂O), manganese monoxide Chemical analysis methods for MnO, phosphorus pentoxide (P₂O₅), zirconium oxide (ZrO₂), and chromium trioxide (Cr₂O₃).

This document applies to aluminosilicate refractory materials (such as pyrophyllite, bauxite and other aluminosilicate raw materials, clay bricks, high-alumina bricks, semi-silica bricks, mullite).

Products such as bricks and corundum bricks; alumina and silica refractory fibers and products; clay and high-alumina slurries, castables, plastics and other unshaped refractory materials. Chemical analysis.

2 Normative references

GB/T 4513.2

GB/T 4984-2023

GB/T 7728

GB/T 8170

GB/T 10325

GB/T 12805

GB/T 12806

GB/T 12808

GB/T 17617

GB/T 18930

3 Terms and Definitions

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

4 Instruments and Equipment

4.1 Balance. graduation value 0.1mg.

4.2 Platinum or porcelain crucible. 30 mL.

4.3 Automatic temperature-controlled drying oven. operating temperature 110°C, temperature fluctuation limit $\pm 1.5^\circ\text{C}$.

4.4 High-temperature furnace. A box-type electric furnace with a maximum operating temperature of not less than 1100°C and automatic temperature control. 4.5 Spectrophotometer.

4.6 Thermostatic magnetic stirrer. 4.7 G4 glass funnel.

4.8 Pipettes. Class A in GB/T 12808.

4.9 Burette. Class A in GB/T 12805.

4.10 Volumetric flasks. Class A in GB/T 12806.

4.11 Atomic Absorption Spectrometer. Equipped with an air-acetylene burner and hollow cathode lamps for calcium, magnesium, potassium, sodium, and manganese. Purity of air and acetylene gas.

The accuracy should be no less than 99.9% to provide a stable, clear, lean flame (a uniform, banded, bluish-white flame). Its minimum precision requirements and characteristics...

The concentration, detection limit, and linearity (curvature) of the standard curve should comply with the requirements of GB/T 7728.

4.12 Flame photometer. capable of determining potassium and sodium.

4.13 Inductively Coupled Plasma Emission Spectrometer. Multi-channel simultaneous type, sequential scanning type, full-spectrum direct reading type.

5.1 Sampling

Laboratory samples shall be collected in accordance with GB/T 10325, GB/T 17617 or GB/T 4513.2.

5.2 Preparation

5.2.1 Crush the laboratory sample to pass through a 6.7 mm standard sieve and reduce it to approximately 100 g using the quartering method. Unless otherwise agreed in the contract, sampling shall be conducted separately.

An exception may be made when a laboratory sample of at least 100g cannot be obtained