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

GB/T 5069-2024

Chemical analysis of magnesia-alumina refractories

镁铝系耐火材料化学分析方法

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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 is required. This document replaces GB/T 5069-2015 "Chemical analysis methods for magnesium-aluminum refractory materials". In addition to structural adjustments and editorial changes, the main technical changes are as follows:

a) The provisions of the element "scope" for the measurement range of content have been changed, and "Table

1 Measurement Range" has been deleted (see Chapter 1, 2015 Edition). Chapter 1);

b) Added a chapter on "Terms and Definitions" (see Chapter 3);

c) Added the normative reference document "GB/T 4513.2" (see 5.1);

d) The content range of titanium dioxide determined by dianthipyryl methane spectrophotometry has been changed (see 11.1,

11.1 of the 2015 edition);

e) The calculation method for determining magnesium oxide content by the "subtraction method" has been changed (see 13.3,

13.3 of the 2015 edition);

f) Deleted the "high-precision measurement method" in the analysis results of the element "flame atomic absorption spectrometry" (see

14.1.6.2 of the 2015 edition);

g) Deleted the "high-precision measurement method" in the analysis result of the element "Determination of manganese oxide" (see

15.6.2 of the 2015 edition);

1 Scope

China's national methods for the chemical analysis of magnesia-alumina refractory materials. These are the basic refractories that line the vessels of steelmaking and cement production - magnesia bricks, magnesia-alumina and magnesia-spinel bricks, magnesia-silica and magnesia-dolomite bricks, and the magnesia and spinel raw materials behind them. Basic means chemically basic, which is the whole point: a basic lining resists the lime-rich slags of steel refining that would dissolve a silica or alumina lining in short order. Its own performance depends closely on its chemistry, and particularly on the impurities - silica, calcia and iron oxide combine with magnesia at grain boundaries to form low-melting phases, so a magnesia brick's service temperature is set less by its magnesia content than by the ratio of lime to silica in what accompanies it. The standard describes the analytical methods for loss on ignition, silica, alumina and the other constituents of these materials.

This document describes the chemical properties of magnesium-aluminum refractory materials such as loss on ignition (LOI), silicon dioxide (SiO_2), and alumina (Al_2O_3). Analytical methods. This document is applicable to magnesium-aluminum refractory materials, such as magnesium (zirconium) bricks, magnesium-aluminum (zirconium) bricks, magnesium (aluminum) spinel bricks, magnesium-silicon bricks, magnesium dolomite (zirconium) Bricks and other products and raw materials such as magnesia and spinel.

2 Sampling

GB/T 4984 Chemical analysis methods for zirconium-containing refractories

GB/T 5070 Chemical analysis methods for chromium-containing refractories

GB/T 7728 General rules for chemical analysis of metallurgical products by flame atomic absorption spectrometry

GB/T 8170 Rules for rounding off values and expression and determination of limit values

GB/T 10325 Rules for acceptance sampling of shaped refractory products

GB/T 12805 Laboratory glass instrument burette

GB/T 12806 Laboratory glassware single-line volumetric flasks

GB/T 12808 Laboratory glassware single-line pipettes

GB/T 17617 Rules for sampling and inspection of refractory raw materials

GB/T 18930 Terminology of Refractory Materials

GB/T 32179 Chemical analysis of refractory materials by wet method, atomic absorption spectrometry (AAS) and inductively coupled plasma atomic emission General requirements for spectroscopy (ICP-AES)

3 Terms and definitions

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

4.1 Balance. Graduation value

0.1 mg.

4.2 Platinum crucible or porcelain crucible. 30 mL.