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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 9489-2024

Methods for chemical analysis of alundum powder

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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 9489-2008 "Chemical analysis method of corundum powder". Compared with GB/T 9489-2008, in addition to the structural adjustment In addition to editorial changes, the main technical changes are as follows: Added "Warning" (see Warning);

a) The concentration of "Silicon Dioxide Standard Solution" and the volume of the volumetric flask during the preparation process have been changed (see 5.3.8,

5.3.8 of the.2008 edition);

b) The flame type of the elements "Ca, Mg" has been changed (see 6.4.4,

6.4.4 of the.2008 edition);

c) Changed the "Test Solution Preparation" in the atomic absorption spectrophotometry (see 6.5.1,

6.5.1 of the.2008 edition);

d) The order of adding "borax and sodium carbonate mixed flux" has been changed (see 7.5.1, 9.5.2.1, 7.5.1,

9.5.2.2 of the.2008 edition). 9.5.2.1);

e) Added the requirement of "storage temperature" of silica standard solution (see 9.5.1, 9.5.2.2);

f) The determination range of titanium dioxide colorimetric method has been changed (see 10.1,

10.1 of the.2008 edition);

g) The volume of titanium dioxide standard solution to be pipetted in "Drawing the working curve" has been changed (see 10.5.1,

1 Scope

China's national methods for the chemical analysis of fused alumina powder. Fused alumina - corundum - is made by melting bauxite or alumina in an electric arc furnace and crushing the resulting crystal mass, and it is the abrasive of grinding wheels, sandpaper and blasting media, as well as a refractory raw material. Its performance rests on what accompanies the alumina rather than on the alumina itself. Sodium is the impurity that matters most: sodium oxide converts corundum into beta-alumina, which is softer and cleaves differently, so a high-soda material grinds poorly whatever its assay says. Silica and titania affect the crystal size and toughness, iron oxide contaminates what is ground, and chloride and sulfur come from the process. The pH and loss on ignition characterise the surface, which determines how the grain bonds into a wheel. The standard describes the determination of aluminium, calcium, magnesium, silicon, iron and titanium oxides, potassium and sodium oxides, chloride, carbon and sulfur, the pH value and the loss on ignition, and applies to corundum powder of at least 90 per cent alumina.

This document describes the content of aluminum oxide, calcium oxide, magnesium oxide, silicon dioxide, iron oxide, titanium dioxide, Determination methods for potassium, sodium oxide, chloride ion, carbon and sulfur, pH value and loss on ignition. This document is applicable to the chemical analysis of corundum powder with an aluminum oxide content (mass fraction) of not less than 90%.

2 Normative references

The contents of the following documents constitute the 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. in this document.

GB/T 4676 Sampling method for common abrasives

GB/T 6682 Specifications and test methods for water used in analytical laboratories