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YS

**NONFERROUS METALS INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

YS/T 575.11-2007

Replacing YS/T 575.11-2006

**Methods for chemical analysis of bauxite. Part 11:
Determination of chromium oxide content. Flame atomic
absorption spectrophotometric method**

铝土矿石化学分析方法 第11部分：三氧化二铬含量的测定 火焰原子吸收光谱法
(English Translation)

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Foreword

YS/T 575-2007 "chemical analysis of bauxite -" Is the YS/T 575-2006 (formerly GB/T 3257-1999) amendments A total of 24 parts.

--- Part 1. aluminum oxide content - EDTA titration

--- Part 2. silica content - Gravimetric - molybdenum blue spectrophotometry

--- Part 3. Determination of silica content molybdenum blue photometric

--- Part 4. iron oxide content - Potassium dichromate titration

--- Part 5. Determination of iron oxide content phenanthroline spectrophotometry

--- Part 6. Determination of titanium dioxide content di Zhao DAM spectrophotometry

--- Part 7. calcium oxide content - Flame Atomic Absorption Spectrometry

--- Part 8. magnesium oxide content - Flame Atomic Absorption Spectrometry

--- Part 9. potassium hydroxide, sodium oxide content - Flame Atomic Absorption Spectrometry

--- Part 10. Determination of manganese oxide content by flame atomic absorption spectrometry

--- Part 11. chromium oxide content - Flame Atomic Absorption Spectrometry

--- Part 12. Determination of vanadium pentoxide content of benzoyl phenylhydroxylamine photometric method

--- Part 13. Determination of zinc content by flame atomic absorption spectrometry

--- Part 14. Determination of total rare earth oxide Tribromoarsenazo spectrophotometry

- Part 15. Determination of gallium oxide content of rhodamine B extraction spectrophotometry
- Part 16. Determination of phosphorus pentoxide molybdenum blue photometric
- Part 17. Determination of sulfur content - Combustion - iodometric method
- Part 18. Determination of total carbon content - Combustion - non-aqueous titration
- Part 19. Determination of burning weight reduction method
- Part 20. pre-dried sample preparation
- Part 21. Determination of organic carbon titration
- Part 22. Analysis of samples moisture intrudes content - Gravimetric method
- Part 23. Determination of the chemical composition of the X-ray fluorescence spectrometry
- Part 24. Determination of carbon and sulfur content infrared absorption method this is Part 11.

The partial replacement of YS/T 575.11-2006 (formerly GB/T 3257.11-1999).

This section is amended to YS/T 575.11-2006, compared with YS/T 575.11-2006, the main changes are as follows.

- The drying temperature of the sample unified $110\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$;
- Increased precision.

The non-ferrous metal part by the National Standardization Technical Committee and centralized.

This part of the Aluminum Corporation of China Zhengzhou Research Institute is responsible for drafting.

This section drafted by the Aluminum Corporation of China Guizhou Branch.

1 Scope

This section specifies the determination method in bauxite chromium oxide content.

This section applies to the determination of bauxite chromium oxide content measurement range. 0.005% to 0.200%.

2 Principle of the method

Sample melted with sodium hydroxide and sodium peroxide decomposition in sulfuric acid and a small amount of potassium permanganate, an anion exchange resin points from

interfering elements such as aluminum, followed by reduction of ascorbic acid eluent and the elution of trivalent chromium in the air - acetylene flame at three wavelength 357.9nm Determination of chromium oxide.

3 Reagents

3.1

sodium hydroxide.

3.2

sodium peroxide.

3.3

hydrochloric acid (0.5mol/L).

3.4

sulfuric acid (1 + 1). adding potassium permanganate solution (3.7) to pink.

3.5

Sodium hydroxide solution [1mol/L].

3.6

osmium sodium.

Weigh 0.5g of osmium tetroxide (spectroscopically pure) was dissolved in 500mL sodium hydroxide solution (3.5) in. An aliquot of the solution was diluted with water dubbed Solution of 0.2g/L of.

3.7

potassium permanganate solution (1g/L).

3.8

potassium permanganate bath. 0.5mL per 100mL of water containing potassium permanganate solution (3.7).

3.9

eluent. 0.5g to 0.5g of ascorbic acid and sodium sulfate dissolved in 100mL of hydrochloric acid (3.3), and the time is now equipped with.

3.10 Standard chromium oxide stock solution

Weigh 1.9335g accurate to 0.0001g, previously dried at 150 °C potassium dichromate (reference reagent), dissolved in water moved 100mL volumetric flask, dilute with water to volume, and mix. 1.000mg per 1mL solution containing chromium oxide.

3.11 Chromium trioxide standard solution.

Dispensing 25.00mL chromium oxide standard stock solution (3.10) in 500mL volumetric flask and dilute to volume, and mix. This solution 50 μ g per 1mL solution containing chromium oxide.

4.1 Atomic absorption spectrophotometer

With 0.5mm x 100mm single slit burner, chromium hollow cathode lamp. Under optimum working conditions, who meet the following indicators Atomic absorption spectrophotometer can be used.

Low sensitivity. absorbance of the highest concentration standard arithmetical concentration of the standard solution is not less than 0.500 to absorbance scale expanded Readings, its stability must also meet the following requirements.

Linear curve. arithmetic concentration standard solution standard solution absorbance readings of the difference between the two highest concentration shall be not less than the minimum concentration