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YS

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

YS/T 575.13-2007

Replacing YS/T 575.13-2006

**Methods for chemical analysis of bauxite. Part 13:
Determination of zinc content. Flame atomic absorption
spectrophotometric method**

铝土矿石化学分析方法 第13部分：锌含量的测定 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 the first 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 13.

The partial replacement of YS/T 575.13-2006 (formerly GB/T 3257.13-1999).

This section is amended to YS/T 575.13-2006, compared with YS/T 575.13-2006, 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 Guangxi Branch.

1 Scope

This section specifies the determination method of bauxite zinc content.

This section applies to the determination of zinc content of bauxite, measurement range. $\leq 0.30\%$.

2 Method summary

Sample with sodium carbonate - boric acid flux melt decomposed in hydrochloric acid medium, with a wavelength of 213.9nm line, air - acetylene flame Determination of zinc.

Silicon seriously interfere with the determination of zinc. Tests showed that magnesium, calcium, iron, manganese, and titanium and other elements can eliminate the interference

of silicon, aluminum can to a certain extent Eliminating provisions affected. Bauxite these elements contained in the sample can better eliminate the interference of silicon determination of zinc, so do not add interference suppression preparation.

3 Reagents

3.1

Sodium carbonate - boric acid flux. the two parts of anhydrous sodium carbonate and boric acid in an agate mortar learning mixed and placed in the grinding jar.

3.2

HCl (1 + 1).

3.3

standard zinc stock solution.

Weigh 0.1000g zinc metal (99.99%) in the 250mL beaker, add 10mL of hydrochloric acid (3.2), dissolved by heating, remove the cooled to room Temperature and transferred to 1000mL volumetric flask, and mix. 1mL solution containing 100µg zinc.

3.4

Zinc standard solution.

Dispensing 50mL standard zinc stock solution (3.3) in 500mL volumetric flask, dilute with water to volume, and mix. This solution containing 1mL 10µg zinc.

NOTE: The reagents used should be checked in advance the amount of zinc.

4 Instrument

4.1

atomic absorption spectrophotometer, with a 0.5mm x 100mm single slot burner since zinc hollow cathode lamp.

Under optimum working conditions, where the index reached the following atomic absorption spectrophotometer can be used.

Low sensitivity. absorbance of the highest concentration standard arithmetical concentration of the standard solution should be not less than 50. Absorbance by the scale expanded Reading its stability must meet the following requirements.

Calibration curve characteristics. arithmetic concentration standard solution standard solution absorbance readings of the difference between the two highest concentration shall be not less than the minimum concentration 0.7 times of the standard solution to zero concentration of the solution absorbance difference.

Minimum stability. absorbance readings with the highest concentration of the standard zero concentration standard solution obtained by multiple measurements corresponding to a maximum concentration the average coefficient of variation of the absorbance of the standard solution should not exceed 1.5% and 0.6%, respectively.

4.2

a platinum crucible. volume 30mL.

5 Sample

The sample was ground with a mortar through 74 μ m sieve, the sample is placed in a good research at 110 °C $\pm$ 5 °C oven drying 2h, placed in a desiccator, cooled