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YS

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

YS/T 575.18-2007

Replacing YS/T 575.18-2006

**Methods for chemical analysis of bauxite. Part 18:
Determination of total carbon content. Non-aqueous titrimetric
method after combustion**

铝土矿石化学分析方法 第18部分：总碳含量的测定 燃烧-非水滴定法
(English Translation)

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3.10 Sulfate ($\rho=1.84\text{g/L}$)

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 18.

The partial replacement of YS/T 575.18-2006 (formerly GB/T 3257.20-1999).

This section is amended to YS/T 575.18-2006, compared with YS/T 575.18-2006, the main changes are as follows.

- Delete the definition of "Titer" in;
- 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 Henan Branch.

1 Scope

This section specifies the determination method of bauxite in the total carbon content.

This section applies to the determination of total carbon content of bauxite, the measurement range. 0.05% to 1.00%.

2 Method summary

The sample in an oxygen stream in $1200\text{ }^{\circ}\text{C}$ thermal decomposition of carbon dioxide produced in Barry phenolphthalein as an indicator, with ethanol - ethanolamine - OH Titrated solution of potassium absorption.

3 Reagents

3.1

Calcium carbonate. reference reagents.

3.2

manganese sulfate.

3.3

potassium hydroxide.

3.4

ethanol.

3.5

ethanolamine.

3.6

discoloration silica gel.

Ammonia 3.7 (1 + 1).

3.8

Aqueous ammonia (19 + 1).

3.9

ammonium persulfate solution. 250g/L.

3.10 Sulfate ($\rho=1.84\text{g/L}$)

3.11 sulfuric acid (1 + 19).

3.12 active manganese dioxide. granular.

Preparation of activated manganese dioxide. Weigh 20g of manganese sulfate (3.2) was dissolved in 500mL of distilled water, concentrated aqueous ammonia was added 10mL (3.7), Shake well, add 90mL solution of ammonium persulfate (3.9), while adding while stirring, boiling 10min, plus 1 to 2 drops of ammonia (3.7), allowed to stand until clear (If not clear, then together with ammonium persulfate solution (3.9) amount). Buchner funnel filtration, with ammonia (3.4) 10 times and hot water 2 to 3 times, with sulfuric acid (3.7) wash 12 times, the last with hot water until no sulfuric acid reaction. At $110\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ drying 4h, prepared following pieces 6mm Grain, stored in a dryer set aside.

3.13 Absorption titration. the 1.5g of potassium hydroxide (3.3) dissolved in 970mL absolute ethanol (3.4) and allowed to stand one day, insolubles were filtered off, plus 30mL of

ethanolamine (3.5) and 0.2g Barry phenolphthalein indicator, and mix.

3.13.1 as follows calibration absorption titration (3.13) the relative concentration of titration.

Weigh 0.0400g (accurate to 0.0001g) pre-drying at $105\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ over calcium carbonate (3.1) in the porcelain boat, according to the sample analysis Step 6.3 titration.

3.13.2 according to formula (1) to calculate the relative concentration of titration.