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YS

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

YS/T 575.10-2007

Replacing YS/T 575.10-2006

**Methods for chemical analysis of bauxite. Part10: Determination
of manganese oxide content. Flame atomic absorption
spectrophotometric method**

铝土矿石化学分析方法 第10部分：氧化锰含量的测定 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 section 10.

The partial replacement of YS/T 575.10-2006 (formerly GB/T 3257.10-1999).

This section is amended to YS/T 575.10-2006, compared with YS/T 575.10-2006, 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 Henan Branch.

1 Scope

This section specifies the determination method of bauxite manganese oxide content.

This section applies to the determination of bauxite manganese oxide content measurement range. $\leq 0.20\%$.

2 Principle of the method

Melt Decomposition of samples with sodium hydroxide, extracted into hydrochloric acid solution with water, in the presence of strontium, atomic absorption spectrophotometer wavelength 279.5nm at the air - acetylene flame measured manganese oxide.

3 Reagents

3.1

sodium hydroxide, pure class distinctions.

3.2

hydrochloric acid (6mol/L).

3.3

nitric acid (1 + 1).

3.4

strontium chloride ($\text{SrCl}_2 \cdot 6\text{H}_2\text{O}$) solution. 150g/L.

3.5

substrate solution. Weigh 6g sodium hydroxide (3.1) in the 250mL beaker, dissolved in water, add 80mL of hydrochloric acid (3.2), cooled and transferred to 250mL volumetric flask, dilute to the mark, shake.

3.6

manganese oxide standard stock solution. Weigh 0.3098g of manganese metal (accurate to 0.0001g, manganese metal is not less than 99.5%) in 250mL Beaker, add 5mL nitric acid (3.3) and dissolved and transferred to 1000mL volumetric flask, add 20mL of hydrochloric acid (3.2), dilute to the mark, shake uniform. This solution 1mL containing 400 μg manganese oxide.

3.7

manganese oxide standard solution. dispensing 10.00mL manganese oxide standard stock solution (3.6) in 1000mL volumetric flask, dilute with water to Mark and shake. 1mL solution containing 4 μg manganese oxide.

4 Instrument

4.1

atomic absorption spectrophotometer, with manganese hollow cathode lamp.

Under optimum working conditions, to achieve the following indicators atomic absorption spectrophotometer can be used.

Low sensitivity. the highest concentration of arithmetic concentration of the standard absorbance reading of not less than 0.5 (including post-scale expansion), the ruler extended Absorbance readings, its stability must comply with the following provisions.

Linear curve. the arithmetic difference between the absorbance readings of the two highest

concentration of the standard concentration of the standard solution is not less than the lowest concentration standard Zero solution concentration of the solution and 0.7 times the light absorbing reading difference.

Minimum stability. absorbance readings the highest concentration of the standard solution with zero concentration of multiple measurements obtained with respect to the highest concentration of the standard solution Liquid absorbance readings mean coefficient of variation were less than 1.5% and 0.6%.

4.2

silver crucible. 30mL, with a crucible cover.

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 but to room temperature before use.