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YS

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

YS/T 254.2-2011

Replacing YS/T 254.2-1994

**Methods for chemical analysis of beryllium concentrate and
beryl. Part 2: Determination of ferric oxide content. EDTA
titrimetry and sulfosalicylic acid spectrophotometry**

铍精矿、绿柱石化学分析方法 第2部分：三氧化二铁量的测定EDTA滴定法磺基水
杨酸分光光度法

(English Translation)

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Foreword

YS/T 254 "of beryllium ore, beryl chemical analysis method" is divided into seven parts.

- Part 1. Determination of the amount of beryllium oxide phosphate gravimetric method;
- Part 2. iron oxide contents - EDTA titration sulfosalicylic acid spectrophotometric method;
- Part 3. Determination of phosphorus content Molybdovanadophosphoric acid spectrophotometry;
- Part 4. Determination of the amount of lithium oxide flame atomic absorption spectrometry;
- Part 5. Determination of the amount of fluorine ion selective electrode method;
- Part 6. Determination of calcium oxide content by flame atomic absorption spectrometry;
- Part 7. moisture content - Gravimetric method.

This section YS/T 254 Part 2.

The partial replacement of YS/T 254.2-1994 "beryllium concentrates - Determination of beryl chemical analysis of EDTA complexometric titration trioxide Iron "(formerly GB/T 5870.2-1986).

Section compared with YS/T 254.2-1994 The main changes are as follows.

- Adds two. sulfosalicylic acid spectrophotometric method;
- Increased repeatability terms;
- Text format has been re-edited, an increase of quality assurance and control provisions.

The non-ferrous metal part by the National Standardization Technical Committee (SAC/TC243) centralized.

This section is drafted. Xinjiang Institute of Nonferrous Metals, Xinjiang Alashankou Exit

Inspection and Quarantine, Hunan Nonferrous Metals set Shuikoushan Group Limited.

1 Scope

This section YS/T 254 provisions of the beryllium ore, beryl Determination of iron oxide content.

This section applies to beryllium ore, beryl determination of ferric oxide. A method for determining the range of > 3.00% - 10.00%; party Act II measurement range of 0.50% to 3.00%.

2.1 Method summary

Mixing the sample with an alkaline flux melted, remove the current flooding, acidified with hydrochloric acid. Acidic solution at a pH of 1.2 to 1.5 in order to sulfosalicylamide Acid as indicator, with disodium EDTA standard solution titration, determination of the amount of ferric oxide.

2.2 Reagents

2.2.1

ammonium persulfate.

2.2.2

hydrochloric acid ($\rho=1.19\text{g/mL}$).

2.2.3

Mixed flux. Anhydrous potassium carbonate, anhydrous sodium carbonate, sodium tetraborate proportionally 1.2.1 preparation, mix.

2.2.4

hydrochloric acid solution (15).

2.2.5

Ammonia (11), pure class distinctions.

2.2.6

sulfosalicylic acid solution (200g/L).

2.2.7

ferric oxide standard stock solution. Weigh 1.0000g advance at $105\text{ }^{\circ}\text{C} \sim 110\text{ }^{\circ}\text{C}$ bake 2h and placed in a desiccator to cool to Room ferric oxide [$w(\text{Fe}_2\text{O}_3) \geq 99.9\%$], placed in 250mL beaker, add 30mL hydrochloric acid (2.2.2), cover the dish table, low Heated until completely dissolved, removed, cooled to room temperature and transferred to 1000mL volumetric flask, dilute with water to volume, and mix. This solution 1mL phase when to

1000 μ g ferric oxide.

2.2.8

ferric oxide standard solution. Pipette 100.00mL iron sesquioxide standard stock solution (2.2.7), placed in 500mL volumetric flask the diluted with water mark and shake. This solution was equivalent to 200 μ g 1mL ferric oxide.

2.2.9.1 Preparation

Weigh 1.87g disodium edetate, placed in 250mL beaker, add 200 mL of water, dissolved by heating, cooled to room temperature, transferred to 1000mL volumetric flask, dilute with water to volume, and mix.

2.2.9.2 Calibration

Pipette three 10.00mL diiron trioxide standard solution (2.2.8), placed in three 250mL conical flask, 0.1g persulfate Ammonium (2.2.1), heated to a boil and keep 3min, remove the coolish, add 8 drops of sulfosalicylic acid solution (2.2.6), with ammonia (2.2.5) in and purple to disappear and appear reddish brown, immediately hydrochloric acid solution (2.2.4) and to purple just appeared and excess 2mL, temperature control solution is 60 °C ~ 80 °C, with disodium edetate standard solution (2.2.9) slow titration to the disappearance of the purple is the end.

According to formula (1) calculated standard solution of disodium ethylenediamine tetraacetate titer T.