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YS

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

YS/T 254.5-2011

Replacing YS/T 254.5-1994

**Methods for chemical analysis of beryllium concentrate and
beryl. Part 5: Determination of fluorine content. Ion selective
electrode method**

铍精矿、绿柱石化学分析方法 第5部分：氟量的测定离子选择电极法
(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 5.

The partial replacement of YS/T 254.5-1994 "beryllium ore, beryl chemical analysis methods ion selective electrode method for the determination of fluorine content" (formerly GB/T 5870.5-1986).

Section compared with YS/T 254.5-1994 The main changes are as follows.

- The Tiron salicylic acid and sulfo formulated separately; use 'sulfosalicylic acid solution "instead of" hydrochloric acid "on the pH value into Line regulation; and "added 10mL Tiron - sulfosalicylic acid solution ionic strength adjustment, the acidity of hydrochloric acid and hydrogen Sodium adjusted pH7.5 "to" join 5mL Tiron, 5mL sulfosalicylic acid solution, the pH meter with sodium hydroxide and sulfosalicylic acid solution was adjusted to pH7.5 ";
- Molten sample before an operation to "The sample was placed on the iron crucible, 4g of sodium hydroxide was added to get rid of water placed on a hot plate, Then covered with 1g sodium peroxide ";

- On the "working curve drawing" method and calculation formula has been modified;
- 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.

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1 Scope

This section YS/T 254 provisions of the beryllium ore, beryl determination of fluorine content.

This section applies to beryllium ore, beryl determination of fluorine in. Determination range of 0.050% to 5.00%.

2 Principle of the method

Sample with sodium hydroxide - regulating liquid molten sodium peroxide decomposition to Tiron and sulfosalicylic acid as ionic strength, at pH7.5 with fluorine Determination of the amount of fluorine ion selective electrode.

Aluminum, beryllium fluoride seriously interfere with the determination. Under assay conditions, it can eliminate the interference of 10mg and 15mg aluminum beryllium oxide.

3 Reagents

3.1

sodium peroxide.

3.2

sodium hydroxide.

3.3

Sodium hydroxide solution (200g/L).

3.4

Sodium hydroxide solution (20g/L).

3.5

Tiron (150g/L). Weigh 75g Tiron in 250mL beaker, add water, heating cooling dissolved, moved 500mL volumetric flask, dilute to volume, and mix.

3.6

sulfosalicylic acid solution (400g/L). known in the 250mL beaker, dissolved in water to take 200g sulfosalicylic acid solution, transferred 500mL volumetric flask, dilute with water to volume, and mix.

3.7

fluoro standard stock solution. Weigh 2.2102g pre-bake 2h at 105 °C ~ 110 °C and placed in the dryer to cool to room temperature Sodium fluoride (excellent pure), placed in a beaker, dissolved in water and transferred to 1000mL volumetric flask, dilute to the mark with water, mix and transferred to dry, clean Net of plastic bottles saved. This solution is equivalent to 1.0mg 1mL fluorine.

3.8

fluoro standard solution. Pipette 50.00mL fluoro standard solution (3.7), placed in 500mL volumetric flask, dilute to the mark with water, mix, shift Into dry, clean plastic bottles saved. This solution is equivalent to 0.1mg 1mL fluorine.

3.9

fluoro standard solution. Pipette 50.00mL fluoro standard solution (3.8) into 500mL volumetric flask, dilute to the mark with water, mix, shift Into dry, clean plastic bottles saved. 1mL of this solution is equivalent to 0.01mg fluorine.

4 Instrument

4.1

pH meter. accuracy 0.02pH.

4.2

ion meter or a digital voltmeter. Accuracy $\pm 0.1\text{mV}$.

4.3

magnetic stirrer.

4.4

FISE. Determination of the electrode should be preceded by a predetermined processing instructions for use.