

ICS 73.060
CCS D 43

YS

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

YS/T 254.3-2011

Replacing YS/T 254.3-1994

**Methods for chemical analysis of beryllium concentrate and
beryl. Part 3: Determination of phosphorus content.
Phosphomolybdenum vanadic acid spectrophotometry**

铍精矿、绿柱石化学分析方法 第3部分：磷量的测定磷钼钒酸分光光度法

(English Translation)

Issued on: December 20, 2011

Implemented on: July 1, 2012

Issued by: Ministry of Industry and Information Technology

Table of Contents

Foreword
1 Scope
2 Method summary
3 Reagents
4 Instrument
5 Sample

Foreword

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

- 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 3.

The partial replacement of YS/T 254.3-1994 "beryllium concentrates - beryl spectrophotometric determination of chemical analysis of the amount of phosphorus molybdenum blue" (original GB/T 5870.3-1986).

Section compared with YS/T 254.3-1994 The main changes are as follows.

- By the method of "molybdenum blue photometric method" to "Molybdovanadophosphoric spectrophotometry." the non-ferrous metal part by the National Standardization Technical Committee (SAC/TC243) centralized.

This section is drafted. Xinjiang Institute of Nonferrous Metals, Hunan Nonferrous Metals Group Co., Ltd. Shuikoushan, Hunan Nonferrous Metal Research Institute.

1 Scope

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

This section applies to beryllium ore, beryl determination of phosphorus. Determination range of 0.010% to 2.00%.

2 Method summary

Sample with sodium hydroxide melt, with the flooding in nitric acid medium, phosphate ions with ammonium vanadate and molybdate form soluble phosphorus molybdenum Vanadate yellow complex in a spectrophotometer at a wavelength of 420nm, absorbance was measured.

3 Reagents

3.1

Sodium hydroxide (excellent pure).

Nitrate 3.2 (rho1.42g/mL).

3.3

ethanol.

3.4

nitric acid solution (11).

3.5

nitric acid solution (13).

3.6

ammonium molybdate solution (100g/L). 10g of ammonium molybdate was dissolved in 80mL water, cooled diluted to 100mL.

3.7

ammonium vanadate solution (3g/L). 0.3g of ammonium metavanadate were dissolved in 50mL water, and 50mL was added a solution of nitric acid (3.4), and cooled.

3.8

Ammonium vanadate - molybdate mixed solution. The ammonium molybdate solution (3.6) was added slowly with constant stirring to the ammonium vanadate solution (3.7) and (when used Existing service).

3.9

pairs nitrophenol ethanol solution (2g/L).

3.10

P standard stock solution. Weigh 0.4394g advance at 105 °C ~ 110 °C bake 2h and cooled to room temperature in desiccator phosphate Potassium dihydrogen [w (KH₂PO₄) ≥99.9%], placed in 250mL beaker, dissolved in water and transferred to 500mL volumetric flask, dilute with water to Volume, and mix. 1mL of this solution is equivalent to 200μg phosphorus.

3.11

Phosphorus standard solution. Pipette 20.00mL phosphorus standard stock solution (3.10), placed in 200mL volumetric flask, dilute to the mark, Mix well. 1mL of this solution is equivalent to 20μg phosphorus.

4 Instrument

Spectrophotometer.

5 Sample

5.1

Beryllium concentrate, Beryl should be through the sieve of 0.074mm sieve.