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YS

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

YS/T 358.4-2011

Replacing YS/T 358-1994

**Methods for chemical analysis of tantalite, columbite
concentrate. Part 4: Determination of tungsten trioxide content.
Thiocyanate spectrophotometric method**

钽铁、铌铁精矿化学分析方法 第4部分：三氧化钨量的测定硫氰酸盐分光光度法
(English Translation)

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Foreword

YS/T 358 "tantalum iron, niobium iron concentrate chemical analysis method" includes 12 parts.

- Part 1. Determination of tantalum and niobium content Paper color layer weight method;
- Part 2. Determination of titanium dioxide - Amipyridine methane spectrophotometric method;
- Part 3. Determination of silicon dioxide - Mo - Mo - blue spectrophotometric and gravimetric methods;
- Part 4. Determination of tungsten trioxide - Thiocyanate spectrophotometric method;
- Part 5. Determination of uranium content - Inductively coupled plasma - atomic emission spectrometry;
- Part 6. Determination of thorium oxide - Inductively coupled plasma - atomic emission spectrometry;
- Part 7. Determination of iron content - Inductively coupled plasma - atomic emission spectrometry;
- Part 8. Determination of iron content - Potassium dichromate titration;
- Part 9. Determination of antimony content - Inductively coupled plasma - atomic emission spectrometry;
- Part 10. Determination of tin content Potassium iodate titration;
- Part 11. Determination of manganese content - Atomic absorption spectroscopy;

- Part 12. Determination of wet water content - Weight method.

This section is part 4 of YS/T 358.

This part of the replacement of YS/T 358-1994 "tantalum iron, niobium iron concentrate chemical analysis method" (formerly YB874-76) Part V "tungsten trioxide Determination of the amount (thiocyanate colorimetric method) ".

The main changes in this part compared with Part 5 of the YS/T 358-1994 are as follows.

- increase the detection limit;
- the amount of sample from 0.10g ~ 0.50g to 0.15g ~ 0.50g;
- increase the precision terms;
- The text format has been modified to increase the quality assurance and control terms.

This part is the national nonferrous Metals Standardization Technical Committee (SAC/TC243).

This part of the drafting unit. Ganzhou Nonferrous Metallurgy Research Institute, Jiujiang tantalum and niobium limited liability company, Yichun tantalum and niobium ore, Conghua tantalum and niobium smelter.

This part of the main drafters. Liu Bo Lu, Liu Hong, Li Ying, Xuan Hong Jian, Wang Jia Rong, Huang Shuang, Deng Yanan.

This part of the previous version of the standard to replace the release of the situation.

YB874-76, YS/T 358-1994.

Chemical analysis of tantalum iron and niobium iron concentrates Part 4. determination of tungsten trioxide content Thiocyanate spectrophotometric method

1 Scope

This method specifies the determination method of tungsten trioxide content in tantalum iron and niobium iron concentrate.

The method is suitable for the determination of tungsten trioxide in tantalum iron and niobium iron concentrate. The measurement range is 0.10% ~ 10.00%.

2 Method summary

The samples were melted with sodium peroxide and leached with water to allow tungsten to enter the solution in the form of sodium tungstate, and the tantalum, niobium and titanium, iron, manganese, copper, Bismuth, calcium and other separation. In a certain hydrochloric acid solution, tungsten is reduced to pentavalent content with titanium trichloride, and then a yellow complex is formed with thiocyanate.

The photometer absorbs the absorbance at a wavelength of 420 nm.

3 Reagent

3.1

Sodium peroxide.

3.2

sodium hydroxide solution (30g/L).

3.3

Oxalic acid solution (100g/L).

3.4

potassium thiocyanate solution (250g/L).

3.5

titanium trichloride solution. remove 2mL titanium trichloride solution (150g/L) in a 1000mL volumetric flask, with hydrochloric acid (2 1) constant volume, mixed uniform. (With the current allocation).

3.6

tungsten trioxide standard solution. Weigh 0.1000g tungsten trioxide [w (WO₃) ≥ 99.95%, pre-fired at 750 °C 1h] placed in 250mL beaker, add 10g sodium hydroxide, about 100mL water, slightly hot to dissolve completely, cool, into the 1000mL volumetric flask, with Water diluted to the mark, mix, store in plastic bottles. This solution 1 mL corresponds to 100 µg of tungsten trioxide.

4 Instruments

Spectrophotometer.

5 Samples

5.1

Specimen size less than 0.074mm.

5.2

samples in 105 °C ~ 110 °C pre-bake 2h, placed in a dryer to cool to room temperature.

6.1 Samples

Dispose of the sample (5) in Table 1, accurate to 0.0001g.