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**YS**

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

**YS/T 358.3-2011**

Replacing YS/T 358-1994

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**Methods for chemical analysis of tantalite, columbite  
concentrate. Part 3: Determination of silicon dioxide content.  
Silicomolybdenum blue spectrophotometry and gravimetry**

钽铁、铌铁精矿化学分析方法 第3部分：二氧化硅量的测定硅钼蓝分光光度法和重量法

**(English Translation)**

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### Foreword

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

--- Part 1. tantalum, niobium determining the amount of the paper color layer weight method;

--- Part 2. Determination of titanium dioxide content of the double security for DAM spectrophotometry;

--- Part 3. Determination of silicon dioxide content and weight of molybdenum blue spectrophotometric method;

--- Part 4. Determination of tungsten trioxide content of thiocyanate spectrophotometric method;

--- Part 5. uranium content - Inductively coupled plasma atomic emission spectrometry;

--- Part 6. thorium oxide content - Inductively coupled plasma atomic emission spectrometry;

--- Part 7. Determination of iron content by inductively coupled plasma atomic emission spectrometry;

--- Part 8. Determination of the amount of ferrous dichromate method;

--- Part 9. Determination of antimony content by inductively coupled plasma atomic emission spectrometry;

--- Part 10. Determination of tin content potassium iodate titration;

--- Part 11. Determination of the amount of manganese atomic absorption spectrometry;

--- Part 12. Determination of hygroscopic water gravimetric method.

This section YS/T Part 3 358.

The partial replacement of YS/T 358-1994 "iron tantalum, niobium, iron ore chemical analysis method" (formerly YB874-76) Part IV, "Silica Determination (1,2,4 acid - Silicon molybdenum blue method) amount. " this portion of YS /358-1994 Part IV T compared to the main changes are as follows.

- Gives a detection limit;
- Determination of the acid 2,4 - Silicon molybdenum blue colorimetric method to use ascorbic acid content of less than 5% - Silicon molybdenum blue spectrophotometry; content 5% or more by weight method;
- Increasing the precision of the terms;
- Text format has been modified to increase the quality assurance and control provisions.

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

This section is drafted. Ganzhou Nonferrous Metallurgy Research Institute, a limited liability company Jiujiang tantalum-niobium, tantalum and niobium ore Yichun, Conghua Tantalum-Niobium smelter.

## 1 Scope

This method specifies iron tantalum, niobium iron ore Determination of silicon dioxide content.

This method is suitable for iron, tantalum, niobium determination of silicon dioxide content of iron concentrate. A method for determining the range of 0.50% to 5.00%. The method II measurement range is > 5.00% to 20.00%.

### 2.1 Method summary

Sample alkali melt, flooding, where appropriate acidity interference with oxalic acid control phosphorus and arsenic, silicon and ammonium molybdate sulfuric acid formed in the media manipulation Silicon molybdenum heteropoly acid, ascorbic acid reduced to silicon molybdenum blue at 650nm wavelength spectrophotometer measured absorbance.

### 2.2 Reagents

#### 2.2.1

sodium hydroxide.

#### **2.2.2**

sodium peroxide.

#### **2.2.3**

nitro phenol solution (1g/L, ethanol).

#### **2.2.4**

sulfuric acid (135).

#### **2.2.5**

ammonium molybdate solution (50g/L).

#### **2.2.6**

oxalic acid - sulfuric acid mixed. 2g oxalic acid dissolved in 100mL (12) in.

#### **2.2.7**

ascorbic acid solution (100g/L, the time is now equipped with).

Silica 2.2.8 Standard stock solution. Weigh 0.1000g silica [w (SiO<sub>2</sub>) ≥ 99.95%] into a platinum crucible, added 6g Anhydrous sodium carbonate melt 30min at 950 °C high temperature furnace, remove the coolish. Bake about 70mL Sheng plastic cup of hot water extraction, wash Net crucible after cooling transferred to 1000mL volumetric flask, dilute with water to volume, and mix. Store in plastic bottle. This solution 1mL quite at 100μg silica.

#### **2.2.9**

Silica Standard Solution. Pipette 50.00mL silica Standard stock solution (2.2.8) was placed in 250mL volumetric flask Dilute with water to volume, and mix. Store in plastic bottle. 1mL of this solution is equivalent to 20μg silica.

### **2.3 Instrument**

Spectrophotometer.

### **2.4 Sample**

#### **2.4.1**

Sample size of less than 0.074mm.

#### **2.4.2**

sample was pretreated at 105 °C ~ 110 °C drying 2h, placed in a desiccator to cool to room temperature.