

ICS 73.060
CCS D 43

YS

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

YS/T 358.11-2011

**Methods for chemical analysis of tantalite, columbite
concentrate. Part 11: Determination of manganese content.
Flame atomic absorption spectrometry**

钽铁、铌铁精矿化学分析方法 第11部分：锰量的测定原子吸收光谱法
(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 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 11 358.

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 smelter Conghua Yichun Ta-Nb ore.

1 Scope

This method specifies iron tantalum, niobium determination of manganese content in iron ore concentrate.

This method is suitable for iron, tantalum, niobium determination of manganese content in iron ore concentrate. Determination of the range of 0.20% to 5.00%.

2 Method summary

Sample with nitric acid, hydrofluoric thermal decomposition. Under suitable acidity, tartaric acid complexed with tantalum, niobium, atomic absorption spectrometer wavelength 279.5nm at the air - acetylene flame measured absorbance of manganese, the manganese content is calculated using the working curve method. Iron, tantalum, niobium, iron ore hetero Quality does not interfere with the determination.

3 Reagents

Nitrate 3.1 (rho1.42g/mL).

3.2

Hydrofluoric acid (rho1.14g/mL).

3.3

hydrochloride (rho1.19g/mL).

3.4

nitric acid (11).

3.5

tartaric acid solution (100g/L).

3.6

manganese standard stock solution. Weigh 1.0000g Jinzhumeng [w (Mn) >=99.99%] in 300mL beaker, add 20mL of nitric acid (3.4), after dissolved by heating, steam until nearly dry, cooling, 10mL of hydrochloric acid (3.3), add boiling water to dissolve, cooled at constant volume 1000mL capacity Flask, mix, and this solution is equivalent to 1mL 1mg manganese.

3.7

Manganese standard solution. Pipette 10.00mL manganese standard stock solution (3.6) in 100mL flask, water volume, mix, and this solution 1mL equivalent to 100 μ g manganese.

4 Instrument

Atomic absorption spectrometer, with a manganese hollow cathode lamp.

Under optimum working conditions for those who can reach the following indicators can be used.

--- Characteristic concentration. In line with the measuring solution matrix solution, characteristic concentration of manganese should not exceed 0.058 μ g/mL;

--- Precision. standard solution with the highest concentration of 10 times the absorbance measurements, the standard deviation should not exceed 1.5% of the average absorbance;

With the lowest concentration of standard solution (not "zero" concentration of the standard) measuring the absorbance of 10 times, the standard deviation should not exceed the maximum the average concentration of 0.5% absorbance;

--- Linear curve. The curve is divided into five sections according to concentration, absorbance difference between the absorbance difference between the highest and the lowest segment of the segment Ratio should not be less than 0.7.

5 Sample

5.1

Sample size of less than 0.074mm.