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

YS/T 358.10-2011

**Methods for chemical analysis of tantalite, columbite
concentrate. Part 10: Determination of tin content. Potassium
iodate titrimetric method**

钽铁、铌铁精矿化学分析方法 第10部分：锡量的测定碘酸钾滴定法
(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 10 of YS/T 358.

This part is the national nonferrous Metals Standardization Technical Committee

(SAC/TC243).

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Chemical analysis of tantalum iron and niobium iron concentrates Part 10. determination of tin content Potassium iodate titration

1 Scope

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

This method is suitable for the determination of tin content in tantalum iron and niobium iron concentrate. The measurement range is 1.00% ~ 20.00%.

2 Method summary

The sample is melted with sodium peroxide, leached with water, and the tin is separated from most of the iron, titanium, niobium, tantalum and the like. In hydrochloric acid solution, tin (IV) Aluminum was reduced to tin (II), starch as an indicator, with potassium iodate standard solution titration, calculate the amount of tin.

3 Reagent

3.1

Sodium peroxide.

3.2

Aluminum [w (Al) $\geq$ 99.9%].

3.3

Hydrochloric acid (ρ 1.19g/mL).

3.4

anhydrous ethanol.

3.5

saturated sodium bicarbonate solution.

3.6

Starch solution (10g/L). Weigh 5g of soluble starch, placed in a 500mL beaker, dissolved in 200mL of boiling water and boiled 2min, cooling. Also called 50g potassium iodide in a

500mL beaker, dissolved in 250mL water. The two solutions were mixed and diluted with water to 500 mL, mix well.

3.7

tin standard solution. weighed 2.0000g metal tin [w (Sn) $\geq$ 99.95%] in 250mL beaker, add 50mL hydrochloric acid (3.3), completely dissolved in a water bath, then add 50mL hydrochloric acid (3.3), cooling, into the 1000mL volumetric flask, diluted with water Degree, mix. This solution 1 mL corresponds to 2 mg of tin.

3.8 Potassium iodate standard solution

3.8.1

Preparation. Weigh 0.64g potassium iodate, 2.5g potassium iodide, 0.3g sodium hydroxide, placed in a 500mL beaker, add.200mL Water, heated to completely dissolved, with glass wool solution will be filtered in 1000mL volumetric flask, diluted with water to the mark, mix.

3.8.2

Calibration. draw 10.00mL tin standard solution (3.7) in 300mL Erlenmeyer flask (with the blank test), add 50mL Water, 50 mL of hydrochloric acid solution (3.3), 2 g of aluminum sheet (3.2), covered with a large volume of saturated sodium bicarbonate solution (3.5) Heating and boiling, so that aluminum completely dissolved, remove, in the water to cool to room temperature. Remove the lid's funnel and add 2 mL of the starch solution (3.6) Potassium iodate standard solution (3.8.1) titration appears stable light blue and purple, that is, the end point. According to formula (1) calculation of potassium iodate standard titration solution on tin the titer of T.

$T = \rho$

$V_2 - V_0$

Where.

T - potassium titanate standard titration solution on the titration of tin in milligrams per milliliter (mg/mL);

ρ --- tin standard solution concentration in milligrams per milliliter (mg/mL);