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YS

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

YS/T 556.14-2011

**Methods for chemical analysis of antimony concentrates. Part
14: Determination of silver content. Flame atomic absorption
spectrometric method**

锑精矿化学分析方法 第14部分：银量的测定 火焰原子吸收光谱法
(English Translation)

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Foreword

This section is in accordance with GB/T 1.1-2009 given rules drafted.

YS/T 556 "Methods for chemical analysis of antimony concentrate," a total of 16 parts.

- Part 1. Determination of antimony content cerium sulfate titration;
- Part 2. Determination of arsenic content potassium bromate titration;
- Part 3. Determination of lead content by flame atomic absorption spectrometry;
- Part 4. Wet water storage Gravimetric method;
- Part 5. Determination of zinc content - Flame atomic absorption spectrometry;
- Part 6. Determination of the amount of selenium by hydride generation - atomic fluorescence spectrometry;
- Part 7. Determination of the amount of mercury atomic fluorescence spectrometry;
- Part 8. Determination of sulfur content - Combustion neutralization method;
- Part 9. Determination of the amount of gold fire assay;
- Part 10. Determination of copper content - Flame atomic absorption spectrometry;
- Part 11. Determination of cadmium content by flame atomic absorption spectrometry;
- Part 12. Determination of bismuth content by flame atomic absorption spectrometry;
- Part 13. Determination of nickel content by flame atomic absorption spectrometry;
- Part 14. Determination of the amount of silver by flame atomic absorption spectrometry;
- Part 16. lead, zinc, copper, cadmium, nickel content - Inductively coupled plasma atomic emission spectrometry.

This is Part 14.

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

This section is responsible for drafting unit. tin mine Twinkling Star Antimony Industry Co., Ltd., Beijing General Research Institute of Mining and Metallurgy.

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Participated in the drafting of this section. Beijing General Research Institute of Mining and Metallurgy, tin mining flash-antimony industry limited liability company, limited Hunan Chenzhou Mining shares the company.

1 Scope

YS/T 556 This part provides for antimony concentrate Determination of silver content.

This section applies to the determination of antimony concentrate in silver content. Determination of the range of 10.00g/t ~ 500.00g/t.

2 Method summary

Samples with hydrochloric acid, nitric acid dissolved, except hydrobromic volatile antimony in hydrochloric acid medium, with air - acetylene flame atomic absorption spectrometer wave the absorbance measured at 328.1nm long silver, the standard curve method to calculate the amount of silver.

3 Reagents

Unless otherwise indicated in the analysis using only recognized as analytical grade reagents and distilled or deionized water or equivalent purity.

3.1

hydrochloride (rho1.19g/mL).

Nitrate 3.2 (rho1.42g/mL).

3.3

nitric acid (11).

3.4

hydrobromide (rho1.42g/mL).

3.5

mixed acid. 3 vol hydrochloric acid (3.1) with 1 volume of nitric acid (3.2) and mixed.

3.6

silver standard solution.

3.6.1

Silver standard stock solution. Weigh 0.5000g metallic silver ($w_{\text{Ag}} \geq 99.95\%$) placed in 150mL beaker, add 50mL nitrate Acid (3.3), cover sheet pan, over low heat until completely dissolved, remove, cool. The brown solution was transferred to 500mL volumetric flask, dilute with water to Volume, and mix. This silver-containing solution 1mL 1mg.

3.6.2

Silver standard solution. Pipette 10.00mL silver standard stock solution (3.6.1) in 100mL brown flask, add 5mL Nitric acid (3.2), dilute to the mark and mix. This solution 1mL silver-containing 100 μg .

4 Instrument

Atomic absorption spectrometer, with a silver hollow-cathode lamp.

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

--- Sensitivity. characteristic concentration was 0.07 $\mu\text{g}/\text{mL}$.

--- Precision. standard solution with the highest concentration of 10 times the absorbance measurements, the standard deviation should not exceed the average absorbance of 1.0%;

The lowest concentration of standard solution used (instead of "zero" concentration of the solution) absorbance measured 10 times, and the standard deviation should not exceed the maximum concentration 0.5% of the mean absorbance of standard solution.

--- 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 of not less than 0.7.