

ICS 73.060
CCS D 42

YS

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

YS/T 1050.9-2015

**Methods for chemical analysis of lead antimony concentrates.
Part 9: Determination of silver content. Flame atomic
absorption spectrometric method**

铅锑精矿化学分析方法 第9部分：银量的测定 火焰原子吸收光谱法
(English Translation)

Issued on: April 30, 2015

Implemented on: October 1, 2015

Issued by: Ministry of Industry and Information Technology

Table of Contents

Foreword
1 Scope
2 Method summary
3 Reagents
3.7 Silver standard solution
4 Instruments and equipment

Foreword

YS/T 1050-2015 "Methods for chemical analysis of lead-antimony concentrate" is divided into the following nine sections.

- Part 1. Determination of lead content Na₂EDTA titration;
- Part 2. Determination of antimony content cerium sulfate titration;
- Part 3. Determination of arsenic content potassium bromate titration;
- Part 4. Determination of zinc contents Na₂EDTA titration;
- Part 5. Determination of sulfur content - Gravimetric method;
- Part 6. Determination of iron content cerium sulfate titration;
- Part 7. Determination of the amount of bismuth and copper - Flame atomic absorption spectrometry amount;
- Part 8. gold and silver content determination fire assay;
- Part 9. Determination of the amount of silver by flame atomic absorption spectrometry.

Part is divided into 9 parts.

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

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

This section is responsible for drafting unit. Guangxi Metallurgical Product Quality Supervision and Inspection Station.

This section drafted by. China Nonferrous Guilin Research Institute of Geology and Minerals Co. Ltd..

Participated in the drafting of this section. Liuzhou one hundred tough special Advanced Materials Co., Ltd., Guangxi Zhuang Autonomous Region Analysis and Testing Center, Guilin Li M University.

Drafters of this section. Xiongzhuan Xin, Lu Kai Yu, Chen Jin, the Fourier, Liu Yongqiang, Zhou Sulian, Huang Xusheng, Huangzhao Min, Chen Zhu Ping, Huang Diangui, Li Yi together, Lvmin Li.

Methods for chemical analysis of lead-antimony concentrate Part 9. Determination of silver content Flame Atomic Absorption Spectrometry

1 Scope

YS/T 1050 provisions of this part of the determination of lead, antimony ore of silver content.

This section applies to the determination of lead-antimony concentrate silver content. Measurement range (mass fraction) of 40.0g/t ~ 1000g/t.

Arbitration analysis, mass fraction of silver > 500g/t, using fire assay (YS/T 1050.8-2015).

2 Method summary

Samples with hydrochloric acid, nitric acid and perchloric acid dissolved in hydrochloric acid medium, with air - acetylene flame atomic absorption spectrometer at a wavelength of 328.1nm Measuring the absorbance of silver, the standard curve method to calculate the amount of silver.

3 Reagents

Unless otherwise indicated, this part of the reagents were analytical reagent, the water for the two water.

3.1

hydrochloric acid ($\rho = 1.19\text{g/mL}$).

3.2

nitric acid ($\rho = 1.42\text{g/mL}$).

3.3

perchloric acid ($\rho = 1.76\text{g/mL}$).

3.4

nitric acid (11).

3.5

mixed acid. the 3 volumes of hydrochloric acid (3.1) with 1 volume of nitric acid (3.2) and mix.

3.6

hydrochloric acid (595).

3.7 Silver standard solution

3.7.1

Silver standard stock solution. Weigh 0.5000g metallic silver (mass fraction of silver $\geq 99.95\%$) placed in 250mL beaker, add 50mL Nitric acid (3.4), cover the surface of the pan, over low heat until completely dissolved, remove, cool. The brown solution was transferred to 500mL volumetric flask with water set Volume, mix. This solution containing silver per milliliter 1mg.

3.7.2

Silver standard solution. Pipette 10.00mL standard silver stock solution (3.7.1) in 100mL brown volumetric flask, was added 5mL of nitric acid (3.2) with water to volume, and mix. This solution containing silver per milliliter 100 μ g.

4 Instruments and equipment

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. in the solution was measured and consistent substrate solution, wherein the concentration of silver is not more than 0.09 μ g/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%;

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 0.5% concentration of the standard average absorbance.