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YS

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

YS/T 1050.2-2015

**Methods for chemical analysis of lead antimony concentrates.
Part 2: Determination of antimony content. Cerium sulfate
titration method**

铅锑精矿化学分析方法 第2部分：锑量的测定 硫酸铈滴定法
(English Translation)

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Table of Contents

Foreword
1 Scope
2 Method summary
3 Reagents

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.

This is Part 2.

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.

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1 Scope

This section YS/T 1050 specifies the method for determination of lead-antimony concentrates antimony content.

This section applies to the determination of antimony content lead-antimony concentrate in the measurement range (mass fraction) was 10.00% ~ 30.00%.

2 Method summary

Sample with sulfuric acid, potassium sulfate decomposition filter paper (after carbonization) as a reducing agent to pentavalent antimony reduced to trivalent. In hydrochloric acid medium, add phosphoric acid High iron mask, methyl orange, methylene blue as indicator, at 80 °C ~ 90 °C titration with cerium sulfate standard solution to the red Faded, mutation was bright green (yellow-green high iron) as the end point.

3 Reagents

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

3.1

potassium sulfate.

3.2

filter.

3.3

metal antimony (Sb mass fraction $\geq 99.99\%$).

3.4

sulfate ($\rho = 1.84\text{g/mL}$).

3.5

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

3.6

phosphoric acid ($\rho = 1.70\text{g/mL}$).

3.7

ethanol.

3.8

hydrochloride (11).

3.9

sulfate (11).

3.10

cerium sulfate standard titration solution.

3.10.1 Formulated

Weigh 12.12g cerium sulfate $[\text{Ce}(\text{SO}_4)_2 \cdot 4\text{H}_2\text{O}]$, placed in 1000mL beaker, add 30mL sulfuric acid (3.4), are stirred Uniform, gradually warming up in the furnace heating dissolved into a paste, and oleum take about 20min, remove cooling, 280mL sulfuric acid (3.9), and then slowly Was added 400mL of water, stirring to dissolve the clear, cool to room temperature and transferred to 1000mL volumetric flask, dilute with water to volume, and mix.

3.10.2 Calibration

Weigh 0.0650g metal antimony (3.3), placed in 300mL conical flask, 5 ~ 10 glass beads, sulfuric acid was added 15mL (3.4), heated to dissolve clear, and heating was continued to take oleum 5min ~ 10min, remove the cooled walls with a little water bottle blowing, slowly along the wall of the bottle Slow added 40mL of water, 12mL phosphoric acid (3.6), shake well, remove the boil, immediately added 30mL of hydrochloric acid (3.8), add 4 drops of methyl orange indicator Agent (3.11), 4 drops of methylene blue indicator (3.12), while maintaining the solution 80 °C ~ 90 °C temperature, cerium sulfate standard titration solution (3.10) titration until the solution faded red mutation were bright blue as the end point.

Along with the calibration blank test.