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YS

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

YS/T 1050.1-2015

**Methods for chemical analysis of lead antimony concentrates -
Part 1: Determination of lead content - Na₂EDTA titration
method**

铅锑精矿化学分析方法 第1部分：铅量的测定 Na₂EDTA滴定法
(English Translation)

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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 Na_2EDTA 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 Na_2EDTA 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 1.

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.

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1 Scope

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

This section applies to the determination of the amount of lead in lead-antimony concentrate, the measurement range (mass fraction) was 14.00% ~ 34.00%.

2 Method summary

Sample by sulfuric acid, nitric acid is dissolved, remove arsenic, antimony and tin with hydrobromic acid. Lead to lead sulfate precipitation and other interfering elements separated precipitate Dissolved in a pH value of 5.5 to 6.0 acid - sodium acetate buffer solution, with xylene orange as indicator, titrate with standard Na₂EDTA to the solution from purple turns bright yellow 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

metallic lead (Pb mass fraction $\geq 99.99\%$).

3.2

sodium fluoride.

3.3

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

3.4

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

3.5

hydrobromide ($\rho = 1.49\text{g/mL}$).

3.6

ethanol.

3.7

ascorbic acid.

3.8

nitric acid (19).

3.9

sulfate wash (298).

3.10

acetic acid - sodium acetate buffer solution. Weigh 200g of sodium acetate [$\text{CH}_3\text{COONa} \cdot 3\text{H}_2\text{O}$] was dissolved in water, was added 10mL of glacial acetic acid, Diluted with water to 1000mL, and mix.

3.11.1 Formulated

2.86gNa2EDTA weighed in a beaker, add water, dissolved by heating, cooling filtration and transferred to 1000mL volumetric flask with water Dilute to volume, mix, after placing 1d calibration.

3.11.2 Calibration

Weigh 0.05g of metallic lead (3.1), accurate to 0.0001g, placed triangle 250mL beaker, add 15mL sulfuric acid (3.3), 5mL Nitric acid (3.4), placed on the high-temperature furnace heated to white smoke vacated. 5.4.2 - 5.4.5 by the following conduct.

Along with the calibration blank test.

The actual concentration Na2EDTA standard titration solution according to formula (1).

$$(V_2 - V_1) \times 10^{-3} \times 207.19 \quad (1)$$