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**YS**

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

**YS/T 1050.6-2015**

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**Methods for chemical analysis of lead antimony concentrates -  
Part 6: Determination of iron content - Cerium sulfate titration  
method**

铅锑精矿化学分析方法 第6部分：铁量的测定 硫酸铈滴定法  
(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<sub>2</sub>EDTA 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<sub>2</sub>EDTA 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 6 sections.

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.

Drafting this Part. Analysis and Testing Institute of Guizhou Province.

Participated in the drafting of this section. Analysis and Testing Center of Guangxi, Liuzhou one hundred tough special Advanced Materials Co., Ltd., Guangxi, China Tin Group Co., Ltd.

## 1 Scope

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

This section applies to lead-antimony concentrates Determination of iron content measurement range (mass fraction) of 5.00% to 20.00%.

## 2 Method summary

Sample with sulfuric acid, nitric acid dissolved, hydrobromic remove arsenic, antimony, iron precipitation (separation of copper), the precipitate was dissolved in hydrochloric acid in the ammonia medium, tungsten Sodium as the indicator, with titanium trichloride to restore high iron to a lower valence with sulfuric acid excess of titanium oxide, cerium oxide, parathion mixed acid was added to diphenyl Amine sulfonate as indicator titration with cerium sulfate standard solution to a stable purple 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

iron (mass fraction of iron  $\geq 99.95\%$ ).

### 3.2

sodium fluoride.

### 3.3

ammonium chloride.

### 3.4

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

### 3.5

phosphoric acid ( $\rho = 1.69\text{g/mL}$ ).

### 3.6

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

### 3.7

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

**3.8**

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

**3.9**

perchloric acid ( $\rho = 1.67\text{g/mL}$ ).

**3.10**

aqueous ammonia ( $\rho = 0.90\text{g/mL}$ ).

**3.11**

hydrochloric acid (11).

**3.12**

hydrochloric acid (199).

**3.13**

ammonia (595).

**3.14**

sodium tungstate solution (50g/L). Weigh 5g of sodium tungstate dissolved in an appropriate amount of water, phosphoric acid was added 10mL (3.5), diluted with water to 100mL, and mix.

**3.15**

titanium trichloride solution. Take 25mL titanium trichloride (15% to 20%), was added 25mL of hydrochloric acid (3.4), 50mL water, and mix with a time of Formulated.

3.16 - sulfuric acid solution of phosphoric acid. sulfuric acid to 150mL (3.6) was added slowly under constant stirring to 500mL of water was added after cooling 150mL phosphoric acid (3.5), diluted with water to 1000mL, and mix.

**3.17**

diphenylamine sulfonate solution (5g/L).

**3.18**

Iron standard solution. Weigh 1.0000g pure iron (3.1) in the beaker, 50mL hydrochloric acid (3.11), cover with a watch glass, in a low temperature electric