

ICS 73.060
CCS D 42

YS

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

YS/T 556.10-2011

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

锑精矿化学分析方法 第10部分：铜量的测定 火焰原子吸收光谱法
(English Translation)

Issued on: December 20, 2011

Implemented on: July 1, 2012

Issued by: Ministry of Industry and Information Technology

Table of Contents

Foreword
1 Scope
2 Method summary
3 Reagents
4 Instrument

Foreword

This standard 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 section 10.

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.

This section is drafted. Beijing General Research Institute of Mining and Metallurgy.

Participated in the drafting of this section. Tin Mine Twinkling Star Antimony Industry Co., Ltd., Guangzhou Nonferrous Metal Research Institute, Hunan Nonferrous Metal Research Institute.

1 Scope

This section YS/T 556 specifies the method for determination of copper content of antimony concentrate.

This section applies to the determination of antimony concentrate copper content. Determination of the range of 0.0020 to 0.10%.

2 Method summary

Samples with hydrochloric acid, nitric acid dissolved, except hydrobromic volatile antimony in hydrochloric acid (119) medium, using air - acetylene flame atomic absorption on a take-spectrometer wavelength 324.7nm measured absorbance of copper.

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

ammonium hydrogen fluoride.

3.2

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

3.3

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

3.4

hydrobromide ($\rho = 1.38\text{g/mL}$).

3.5

perchloric acid ($\rho = 1.68\text{g/mL}$).

3.6

hydrochloride (11).

3.7

nitric acid (11).

3.8

copper standard stock solution. Weigh 1.0000g copper ($w_{Cu} \geq 99.99\%$) in 250mL beaker, add 40mL of nitric acid (3.7), dissolved by heating, boiling rid of nitrogen oxides, remove the cooled to room temperature and transferred to 1000mL volumetric flask, dilute to the mark with water, mix uniform. This copper-containing solution 1mL 1mg.

3.9

Copper Standard Solution. Pipette 25.00mL copper standard stock solution (3.8) in 500mL volumetric flask, was added 20mL of hydrochloric acid (3.6), Dilute with water to volume, and mix. This solution 1mL copper 50 μ g.

4 Instrument

Atomic absorption spectrometer, with copper hollow cathode lamp.

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

--- Characteristic concentration. the test solution and measurement matrix consistent solution features copper concentration should not exceed 0.03 μ g/mL.

--- Linear curve. The curve is divided into five sections according to concentration, absorbance difference between the highest and the lowest section of the absorbance difference between segments Ratio of not less than 0.85.

--- Precision. measure 10 times the absorbance of the highest concentration of the standard solution, the standard deviation should not exceed 1% of the average absorbance; with the lowest concentration standard solution (not a "zero" standard solution) absorbance measured 10 times, and the standard deviation should not exceed the standard maximum concentration