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

YS/T 53.3-2010

Replacing YS/T 53.3-1992

**Methods for chemical analysis of copper, lead, zinc original and
tailing ores. Part 3: Determination of silver content. Flame
atomic absorption spectrometric**

铜、铅、锌原矿和尾矿化学分析方法 第3部分：银量的测定火焰原子吸收光谱法
(English Translation)

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Foreword

YS/T 53 "Copper, lead, zinc ore tailings and chemical analysis method" is divided into three parts.

- Part 1. Determination of the amount of gold fire assay enrichment - flame atomic absorption spectrometry;
- Part 2. determination of gold by Flow Injection Micro - column separation -8531 fiber enrichment - flame atomic absorption spectrometry;
- Part 3. Determination of the amount of silver by flame atomic absorption spectrometry.

This section is part 3.

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

This part is YS/T 53.3-1992 amendments. This section compared with YS/T 53.3-1992, have the following main changes.

- Increased the preamble;
- Omitted "reference standard" one;
- Text format has been modified;
- Increasing the precision part;
- Increased quality assurance and control provisions.

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

This section is drafted. Beijing Mining Research Institute, Guangzhou Nonferrous Metal Research Institute.

Participated in the drafting of this section. Lingnan Shaoguan smelter Ltd., Chinalco Luoyang Copper Co., Ltd., Henan Yuguang Gold & Lead Group Co., Ltd., Tongling

Nonferrous Metals Group Holdings Limited, Shuikoushan Nonferrous Metals Group Co., Ltd.

1 Scope

YS/T of the provisions of section 53 of the method for the determination of copper, lead, zinc ore and tailings in silver content.

This section applies to the determination of copper, lead, zinc ore and tailings in silver content. This section measurement range. 0.50g/t ~ 200g/t.

2 Method summary

Sample was dissolved with hydrochloric acid, nitric acid, hydrofluoric acid and perchloric acid. Air - acetylene flame atomic absorption spectrometer wavelength 328.1nm at measuring the absorbance of silver. Silver content is calculated using the working curve method.

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

hydrochloric acid.

3.2

nitrate.

3.3

perchloric acid.

3.4

hydrofluoric acid.

3.5

butyl acetate.

3.6

diphenylthiourea - butyl acetate (2g/L). 1g 500mL diphenyl thiourea were dissolved butyl acetate (3.5) in.

3.7

Silver standard stock solution. Weigh 0.5000g of metallic silver ($\geq 99.99\%$), placed in a beaker of 200mL, 25mL of nitric acid was added (3.2), cover the surface of the pan, boil

until completely dissolved and get rid of nitrogen oxides, removed, washed with water and dish table Beibi, cooled to room temperature. Moved 500mL brown volumetric flask, dilute with water to volume, and mix. 1mL solution containing 1mg silver.

3.8

silver standard solution A. Pipette 10.00mL silver standard stock solution (3.7) into 1000mL brown volumetric flask, add salt 100mL Acid (3.1), dilute to the mark and mix. This solution 1mL containing 10 μ g silver.

3.9

silver standard solution B. Pipette 25.00mL silver standard solution A (3.8) previously placed there 25mL hydrochloric acid (3.1) of 250mL brown Color volumetric flask, dilute with water to volume, and mix. This solution 1mL containing 1 μ g silver.

4 Instrument

Atomic absorption spectrometer (with a background subtraction function), with a silver hollow-cathode lamp.

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

--- Sensitivity. the substrate solution consistent with the measurement solution, features silver concentration should be less than 0.030 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%;

The lowest concentration of standard solution used (instead of "zero" standard solution) absorbance measured 10 times, and the standard deviation should not exceed the maximum concentration 0.5% of the mean absorbance of the standard solution;