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YS

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

YS/T 53.2-2010

Replacing YS/T 53.2-1992

**Methods for chemical analysis of copper, lead, zinc original and tailing ores. Part 2:
Determination of gold content. Separation and preconcentration by flow injection and
8531 fiber micro-column-the flame atomic absorption spectrum method**

铜、铅、锌原矿和尾矿化学分析方法 第2部分：金量的测定流动注射-8531纤维微
型柱分离富集-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 2.

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

The partial replacement of YS/T 53.2-1992, this portion of YS/T 53.2-1992 compared to the main changes are as follows.

- Increased the preamble;
- 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 responsible for drafting unit. Beijing Nonferrous Metal Research Institute.

Participated in the drafting of this section. Beijing General Research Institute of Mining and Metallurgy, Tongling Nonferrous Metals Group Holdings Co., Jiangxi Copper Group Co., Ltd. Division, Chinese Academy of Geological Sciences.

1 Scope

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

This section applies to the determination of copper, lead, zinc ore and tailings gold content. Measuring range. 0.01g/t ~ 1.0g/t.

2 Principle of the method

Calcined sample after 650 °C 2h, with aqua regia decomposition in dilute aqua regia medium flow injection -8531 micro fiber enrichment -Gold, with air - acetylene flame atomic absorption spectrometer wavelength 242.8nm measured absorbance of gold, calculated using the working curve method Gold content.

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

aqua regia (11), the time is now equipped with.

3.2

aqua regia (19).

3.3

aqua regia (298).

3.4

thiourea solution (5g/L). Weigh 10g of thiourea in 1000mL beaker, add water, 300mL, 200 mL aqua regia (3.2) was dissolved, shifting Vial into 2500mL, 1500mL additional water, and mix.

3.5

of polyethylene oxide solution (1g/L).

3.6

gold standard stock solution. Weigh 0.1000g Gold ($w_{Au} \geq 99.99\%$) in 100mL beaker, add 40mL aqua regia (3.1), 2 drops of saturated potassium chloride solution, mixed, low-temperature hot plate was heated until complete dissolution, cooled to room temperature. The solution was transferred to 100mL capacity Bottle, diluted with water to volume, and mix. 1mL solution containing 1mg gold.

3.7

gold standard solution. Pipette 10.00mL gold standard stock solution (3.6) in 1000mL flask, add 400mL aqua regia (3.1), Diluted with water to volume, and mix. This solution 1mL containing 10 μ g gold.

3.8

gold standard solution. Pipette 10.00mL gold standard stock solution (3.7) in 100mL flask, add 40mL aqua regia (3.1) to Dilute with water to volume, and mix. This solution 1mL containing 1 μ g gold.

4 Instruments and apparatus

4.1

polycarbonate cup sealing solution, the volume of 100mL.

4.2

water bath.

4.3

Separation and Enrichment of Trace Gold by Flow Injection system includes the following components.

a) four peristaltic pump;