

ICS 77.120.01  
CCS H 14

**YS**

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

**YS/T 745.8-2010**

---

**Methods for chemical analysis of copper anode slime. Part 8:  
Determination of arsenic content. Hydride generation-atomic  
fluorescence spectrometry method**

铜阳极泥化学分析方法 第8部分：砷量的测定 氢化物发生原子荧光光谱法  
(English Translation)

**Issued on: November 22, 2010**

**Implemented on: March 1, 2011**

---

**Issued by: Ministry of Industry and Information Technology**

## Table of Contents

|                  |
|------------------|
| Foreword         |
| 1 Scope          |
| 2 Method summary |
| 3 Reagents       |
| 4 Instrument     |

### Foreword

YS/T 745 "Methods for chemical analysis of copper anode mud" is divided into nine sections.

- Part 1. Determination of copper content iodometry;
- Part 2. gold and silver content determination fire assay gravimetric method;
- Part 3. the amount of platinum and palladium contents - fire assay enrichment - Inductively coupled plasma atomic emission spectrometry;
- Part 4. Determination of the amount of selenium iodometry;
- Part 5. Determination of tellurium content dichromate method;
- Part 6. Determination of lead content Na<sub>2</sub>EDTA titration;
- Part 7. Determination of bismuth content - Flame atomic absorption spectrometric method and Na<sub>2</sub>EDTA titration;
- Part 8. Determination of arsenic content by hydride generation - atomic fluorescence spectrometry;
- Part 9. Determination of antimony content - Flame atomic absorption spectrometry.

This section 8.

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

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

This section is responsible for drafting unit. Daye Nonferrous Metals Corporation.

This section is drafted. Guangzhou Nonferrous Metal Research Institute.

Participated in the drafting of this section. Jinchuan Group Ltd., Tongling Nonferrous Metals

Group Holdings Co., Jiangxi Copper Co. shares the company.

## 1 Scope

YS/T 745 This section specifies the determination of copper anode mud arsenic content.

This section applies to the determination of copper anode mud arsenic content. Measuring range. 0.50% to 5.00%.

## 2 Method summary

Sample with nitric acid, hydrochloric acid dissolved in hydrochloric acid medium with thiourea - ascorbic acid pre-reduction, arsenic hydride generator is borohydride Reduction of potassium hydride, with argon gas was introduced into the atomizer, the fluorescence intensity measured on the atomic fluorescence spectrometer, calculated according to the working curve method Arsenic.

## 3 Reagents

Unless otherwise indicated in the analysis using only recognized as analytical grade reagents and distilled or deionized water or equivalent purity.

Nitrate 3.1 (rho1.42g/mL).

### 3.2

hydrochloride (rho1.19g/mL).

### 3.3

hydrochloride (19).

### 3.4

thiourea - ascorbic acid solution. Weigh thiourea, ascorbic acid each 25g, dissolved in water and diluted to 500mL, and mix. time cost Now equipped.

### 3.5

solution of potassium borohydride (20g/L). Weigh 10.0g potassium borohydride, potassium hydroxide solution was added 500mL (5g/L) were dissolved, and mix.

The time is now equipped with.

### 3.6

arsenic standard stock solution. Weigh 0.1320g advance and cooled at 100 °C ~ 105 °C baking 1h in a desiccator to room temperature Benchmark 3 Arsenic oxide in 150mL beaker, was added 10mL of sodium hydroxide solution (100g/L), low-temperature heating to dissolve, add 10mL water, 2 drops of phenolphthalein ethanol solution (1g/L), washed with

hydrochloric acid (11) and to the color disappeared after excess 5mL, 1000mL volumetric flask transferred to Dilute with water to volume, and mix. This solution 1mL containing 100 $\mu$ g arsenic.

### 3.7

arsenic standard solution. Pipette 20.00mL arsenic standard stock solution (3.6) in 500mL volumetric flask, was added 10mL of hydrochloric acid (11), diluted with water to volume, and mix. 1mL solution containing 4 $\mu$ g arsenic.

### 3.8

Argon (Ar $\geq$ 99.99%).

## 4 Instrument

Atomic fluorescence spectrometer, with a special arsenic hollow cathode lamps and intermittent flow sampling device.

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

--- Detection limit. not more than 1ng/mL.

--- Precision. with 100ng/mL standard solution of arsenic fluorescence intensity was measured 10 times, and the standard deviation should not exceed the average fluorescence intensity