

ICS 77.120.60

CCS H 13

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

YS/T 1046.7-2015

**Methods for chemical analysis of copper slag concentrates. Part 7: Determination
of arsenic, antimony, bismuth, lead, zinc and magnesium oxide content.**

Inductively coupled plasma atomic emission spectrometry

铜渣精矿化学分析方法 第7部分：砷、锑、铋、铅、锌、氧化镁量的测定 电感耦合等离子体原子发射光谱法

(English Translation)

Issued on: April 30, 2015

Implemented on: October 1, 2015

Issued by: Ministry of Industry and Information Technology

Table of Contents

- Foreword
- 1 Scope
- 2 Method summary
- 3 Reagents

Foreword

YS/T 1046-2015 "copper slag concentrates chemical analysis method" is divided into seven sections.

- Part 1. Determination of copper content iodometry;
- Part 2. Determination of gold and silver atomic absorption spectroscopy and fire assay gravimetric method;
- Part 3. Determination of sulfur content of combustion titration method;
- Part 4. Determination of iron content dichromate method;
- Part 5. Determination of the amount of silica silicon potassium fluoride titration;
- Part 6. aluminum oxide content - Inductively coupled plasma atomic emission spectrometry;
- Part 7. arsenic, antimony, bismuth, lead, zinc, magnesium oxide content - Inductively coupled plasma atomic emission spectrometry.

This is Part 7.

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.

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1 Scope

This section YS/T 1046 provisions of arsenic, antimony, bismuth, lead, zinc, copper Determination of magnesium oxide content of the slag concentrate.

This section applies to arsenic, antimony, bismuth, lead, zinc, copper slag determination of magnesium oxide content of concentrate. Determination of the range in Table 1.

Table 1 Measuring range

Element content /%

As 0.05 ~ 0.45

Sb 0.07 ~ 0.30

Bi 0.01 ~ 0.20

Pb 1.00 ~ 4.50

Zn 1.00 ~ 4.50

MgO 0.30 ~ 2.00

2 Method summary

Samples with hydrochloric acid, nitric acid, hydrofluoric acid and perchloric acid dissolved. With a mixed acid salts dissolved in dilute mixed acid medium, in inductively coupled plasma Sub-atomic emission spectrometer to determine the content of arsenic, antimony, bismuth, lead, zinc, magnesium oxide.

3 Reagents

Unless otherwise indicated, used in the analysis confirmed only for the gifted class pure reagents, the water is a water.

3.1

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

3.2

hydrochloride (11).

3.3

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

3.4

nitric acid (11).

Mixed acid 3.5. 1 volume of hydrochloric acid 3 vol nitric acid.

3.6

mixed acid (11).

3.7

Hydrofluoric acid ($\rho = 1.15\text{g/mL}$).

3.8

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

3.9

Sodium hydroxide solution (100g/L).

3.10

arsenic standard stock solution. Weigh 1.3200g advance by $100\text{ }^{\circ}\text{C} \sim 110\text{ }^{\circ}\text{C}$ drying 2h cooled to room temperature in a desiccator reference Arsenic trioxide (As_2O_3), placed in 150mL teflon beaker, 10mL sodium hydroxide solution (3.9), dissolved by heating, cooling However, moved into 1000mL volumetric flask, add water to 200mL $\sim$ 300mL, add 2 drops of phenolphthalein ethanol solution (3.17), with nitric acid (3.4) in