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

YS/T 716.4-2009

**Methods for chemical analysis of low grade blister. Part 4:
Determination of arsenic content. Iodimetry**

黑铜化学分析方法 第4部分：砷量的测定 碘量法

(English Translation)

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Foreword

YS/T 716-2009 "chemical analysis of black copper" is divided into six parts.

- Part 1. Determination of copper content of sodium thiosulfate titration;
- Part 2. Determination of the amount of gold and silver fire assay;
- Part 3. Flame atomic bismuth, nickel, lead, antimony and zinc content absorption spectrometry;
- Part 4. Determination of arsenic content iodometry;
- Part 5. Determination of tin content potassium iodate titration;
- Part 6. arsenic, bismuth, nickel, lead, antimony, tin, zinc content - Inductively coupled plasma atomic emission spectrometry.

This section YS/T Part 4 716.

The non-ferrous metal part by the National Standardization Technical Committee and centralized.

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1 Scope

YS/T of the provisions of section 716 of the measurement method in ferrous copper arsenic content.

This section applies to the determination of black copper arsenic content. Measuring range. 0.20% to 1.0%.

2 Method summary

Sample with nitric acid - sulfuric acid dissolved in 6mol/L hydrochloric acid system, sodium hypophosphite as reducing agent, the reduction of arsenic is precipitated as elemental arsenic, thereby it with the matrix and coexisting elements separated, iodometric method for the determination of arsenic 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

hypophosphite.

3.2

potassium iodide.

3.3

sodium hydroxide.

Nitrate 3.4 (rho1.42g/mL).

3.5

hydrochloride (rho1.19g/mL).

3.6

HCl (1 + 1).

3.7

sulfate (1 + 1).

3.8

sodium hypophosphite solution (20g/L). 2.0g Sodium hypophosphite was dissolved in 100mL (1 + 1) hydrochloric acid solution.

3.9

ammonium chloride solution (50g/L).

3.10

sodium bicarbonate solution (50g/L).

3.11

starch solution (5g/L). Weigh 0.5g soluble starch in 200mL beaker, add a little water, stir, stirring was added 100mL Boiling water, then boil until clear, cool reserve.

3.12

phenolphthalein ethanol solution (5g/L). Weigh 0.5g of phenolphthalein is dissolved 100mL95% ethanol solution.

3.13

arsenic standard solution ($\text{Ba } 1/4\text{As}_2\text{O}_3 = 0.0200\text{mol/L}$). Weigh 0.98920g advance at $100^\circ\text{C} \sim 110^\circ\text{C}$ drying 2h, then Cooling to room temperature in a desiccator reference arsenic trioxide in 100mL beaker, add 25mL200g/L sodium hydroxide solution, cold Heated to dissolve clear, transferred to 1000mL volumetric flask, dilute with water to about 200mL, dropping 3 drops of phenolphthalein ethanol solution with sulfuric acid (3.7) and to colorless, then add 5g of sodium bicarbonate, cooled to room temperature and dissolved, diluted with water to volume, and mix.

3.14

iodine standard solution [$\text{Ba } 1/2\text{I}_2 = 0.0200\text{mol/L}$].

3.14.1

preparation. Weigh 2.54g of iodine crystals in 100mL beaker, and 40g of potassium iodide dissolved in water 25mL, transferred to 1000mL Brown volumetric flask, dilute with water to volume, and mix.

3.14.2

Calibration. in 300mL conical flask, 50mL 5mL sodium bicarbonate solution and starch solution, and the solution titrated with standard iodine to blue, then pipette 40.00mL arsenic standard solution, and then titrated standard iodine solution was dropped to the light blue is the end.

According to equation (1) to calculate the actual concentration of iodine standard titration solution.