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

YS/T 1046.5-2015

**Methods for chemical analysis of copper slag concentrates.
Part 5: Determination of silicon dioxide content. Potassium
fluosilicate titration method**

铜渣精矿化学分析方法 第5部分：二氧化硅量的测定氟硅酸钾滴定法

(English Translation)

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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 5.

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 specifies the method for determination of copper slag concentrate silica content.

This section applies to the determination of copper slag concentrate silica content.

Measurement range of 8.00% - 25.00%.

2 Method summary

Sample with a base melted with hot water extraction, after acidification, in strongly acidic solution was added potassium chloride and potassium fluoride and silicate ions formed fluorosilicone the precipitate potassium fluoride potassium silicate material amount of hydrolysis, precipitation of hydrofluoric acid in hot water with phenolphthalein as an indicator, sodium hydroxide standard titration solution Titration, calculate the mass fraction of silica based on the volume of sodium hydroxide standard titration solution consumed.

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

sodium hydroxide.

3.2

sodium peroxide.

3.3

potassium hydroxide.

3.4

potassium chloride.

Before potassium hydrogen phthalate 3.5, the benchmark reagents, used in 105 °C ~ 110 °C drying to constant weight.

3.6

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

3.7

hydrochloride (11).

3.8

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

3.9

potassium fluoride solution (200g/L). Weigh 100g of potassium fluoride were dissolved in 300mL of water, 100mL added nitric acid (3.8), potassium chloride (3.4) to saturation, diluted with water to 500mL, mix, 30min dry filter in a plastic bottle aside.

3.10

Potassium chloride - ethanol washing solution. Weigh 250g of potassium chloride (3.4) was dissolved in 3000mL of water, was added 1000mL of ethanol, diluted with water to 5000mL, and mix, adding 1mL phenolphthalein ethanol solution (3.14), with sodium hydroxide solution (3.13.2) and to the solution was slightly red.

3.11

potassium chloride - ethanol solution. Weigh 5g of potassium chloride (3.4) was dissolved in 50mL of water was added 50mL of ethanol, and mix.

3.12

potassium sodium tartrate solution (10g/L). Weigh 10g of potassium sodium tartrate was dissolved in 1L of water, add 5 drops of phenolphthalein ethanol solution after boiling (3.14), sodium hydroxide solution (3.13.2) and to the solution was slightly red.

3.13

sodium hydroxide solution.

3.13.1

Storage standard sodium hydroxide solution. Weigh 110g of sodium hydroxide (3.1) dissolved in 100mL of carbon dioxide-free water, mix, into poly Ethylene container, sealed place until the solution clear.

3.13.2

sodium hydroxide solution [$c(\text{NaOH}) \sim 0.2\text{mol/L}$]. plastic measuring cylinder 11mL sodium hydroxide standard stock solution (3.13.1) the supernatant was diluted to 1L with carbon dioxide-free water, and mix.