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

YS/T 716.5-2009

**Methods for chemical analysis of low grade blister. Part 5:
Determination of tin content. Potassium iodate titration**

黑铜化学分析方法 第5部分：锡量的测定碘酸钾滴定法

(English Translation)

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Table of Contents

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

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 5 716.

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

This section is responsible for drafting unit. Tongling Nonferrous Metals Group Holdings Limited.

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Participated in the drafting of this section. Tongling Holdings Limited, Jiangxi Copper Corporation.

1 Scope

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

This section applies to the determination of the amount of tin in the black copper.
Measurement range. > 0.50% to 5.00%.

2 Method summary

The sample with hydrochloric acid and hydrogen peroxide dissolved, ferric hydroxide co-precipitation separation of tin from copper. In the hydrochloric acid solution, mercuric chloride as catalyst Agent, sodium hypophosphite is reduced to the tetravalent tin divalent tin, starch as indicator, titrate with potassium iodate standard solution titration.

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

HCl (1 + 1).

3.2

Hydrogen peroxide.

Ammonia 3.3 (1 + 1).

3.4

ferric chloride solution (10g/L).

3.5

washing solution. 0.5g of ammonium chloride was dissolved in water, aqueous ammonia added 50mL (3.3), diluted with water to 1000mL.

3.6

mercuric chloride solution (5g/L).

3.7

sodium hypophosphite solution (600g/L).

3.8

ammonium thiocyanate solution (500g/L).

3.9

potassium iodide solution (100g/L).

3.10

saturated sodium bicarbonate solution.

3.11

potassium iodate standard titration solution .(Ba $1/6KIO_3 = 0.03\text{mol/L}$; Ba $1/6KIO_3 = 0.012\text{mol/L}$).

3.11.1 Formulated

3.11.1.1

potassium iodate standard titration solution .(Ba $1/6\text{KIO}_3 = 0.03\text{mol/L}$).

Weigh 1.1g of potassium iodate dissolved in water 1000mL, shake.

3.11.1.2

potassium iodate standard titration solution .(Ba $1/6\text{KIO}_3 = 0.012\text{mol/L}$).

Pipette 200.00mL potassium iodate titration standard solution (3.11.1.1) in 500mL volumetric flask, dilute with water to volume, and mix.

3.11.2 Calibration

Weigh 2.000g copper (mass fraction of copper $\geq 99.95\%$), 0.0200g metal tin (tin content $\geq 99.95\%$) placed 400mL beaker, was added 30mL of hydrochloric acid (3.1), cover sheet pan, was added, washed with water until copper tin dissolved 5mL of hydrogen peroxide (3.2),

Table dish, add 100mL of water, heating 5min. 6.4.2 - 6.4.4 by the following conduct.

Another said that the mass fraction of 2.000g take copper (Cu

$\geq 99.95\%$) 1 part, along with the calibration blank test. Parallel potassium iodate standard titration solution volume three, which consumes very Calibration the difference should not exceed 0.20mL, averaged, or re-calibration.

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