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

YS/T 745.1-2010

**Methods for chemical analysis of copper anode slime. Part 1:
Determination of copper content. Iodine titration method**

铜阳极泥化学分析方法 第1部分：铜量的测定碘量法

(English Translation)

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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_2EDTA titration;

--- Part 7. Determination of bismuth content - Flame atomic absorption spectrometric method and Na_2EDTA titration;

--- Part 8. Determination of arsenic content by hydride generation - atomic fluorescence spectrometry;

--- Part 9. Determination of antimony content - Flame atomic absorption spectrometry.

This is Part 1.

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.

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1 Scope

YS/T in this part 745 specifies the method for determination of copper anode mud of copper content.

This section applies to the determination of copper content in copper anode mud, the measurement range. from 5.00% to 27.00%.

2 Method summary

Sample was dissolved in hydrochloric acid, nitric acid, sulfuric acid, hydrobromic acid was removed by interfering elements arsenic, antimony and tin. Controlling the pH value of 3 to 4, with fluorine Ammonium hydrogen masking iron, potassium iodide and cupric role precipitated iodine with starch as indicator, titrated with sodium thiosulfate 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

hydrochloride (rho1.19g/mL).

Nitrate 3.2 (rho1.42g/mL).

3.3

sulfate (11).

3.4

hydrobromide (rho1.42g/mL).

3.5

Ammonia (rho0.90g/mL).

3.6

Glacial acetic acid (rho1.05g/mL).

3.7

potassium iodide.

3.8

starch solution (5g/L).

3.9

saturated solution of ammonium hydrogen fluoride.

3.10

ferric chloride solution (100g/L).

3.11

potassium thiocyanate solution (100g/L). Weigh 10g of potassium thiocyanate in the 400mL beaker, dissolved in water and diluted to 100mL. plus Into 2g of potassium iodide (3.7) dissolved, 2mL starch solution (3.8), while shaking side drops of iodine solution (about 0.04mol/L) to just show blue Color, and then sodium thiosulfate standard titration solution titration to blue just disappears.

3.12

Copper Standard solution. Weigh 1.0000g copper ($\geq 99.99\%$) into 500mL conical beaker, was added 20mL of nitric acid (11), Cover the surface of pan, over low heat to dissolve completely, adding sulfuric acid (3.3) 10mL, to take thick white smoke steaming, remove the cooled, washed with water and wash glass cup Wall, micro heat to dissolve the salt, remove the cooled and transferred to 500mL volumetric flask, dilute with water to volume, and mix. This solution containing 1mL 2mg copper.

3.13 Sodium thiosulfate standard titration solution [$c(\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}) \sim 0.04\text{mol/L}$]

3.13.1

preparation. Weigh 100g of sodium thiosulfate ($\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$) placed in 1000mL beaker, was added 2g of anhydrous sodium carbonate, Added 500mL water dissolved and transferred to 10L brown reagent bottle. Boiled cooled and diluted with deionized water to about 10L, added 1mL three Chloride, mixing, filtration after standing two weeks.

3.13.2

Calibration. Pipette four 50.00mL copper standard solution (3.12) in 500mL conical beaker with water purge vessel wall. In accordance with points