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

YS/T 745.5-2010

**Methods for chemical analysis of copper anode slime. Part 5:
Determination of tellurium content. Potassium dichromate
titrimetric method**

铜阳极泥化学分析方法 第5部分：碲量的测定 重铬酸钾滴定法

(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 Na₂EDTA titration;

--- Part 7. Determination of bismuth content - Flame atomic absorption spectrometric method and Na₂EDTA 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 5.

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 745 This section specifies the determination of copper anode mud tellurium content.

This section applies to the determination of copper anode mud tellurium content. Measuring range. 0.50% to 10.00%.

2 Method summary

The sample is dissolved in nitric acid, sulfuric acid, hydrochloric acid (3.2) medium, with tin dichloride reduction to elemental tellurium, copper, arsenic, antimony, bismuth, lead, big the amount of impurities separation. After acid precipitation to dissolve, adding an excess of potassium dichromate standard titration solution oxyalkylene telluric acid, and then to drop the standard ferrous ammonium sulfate Set back titration of excess potassium dichromate solution.

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

3.2

hydrochloric acid (3565).

Nitrate 3.3 ($\rho=1.42\text{g/mL}$).

3.4

nitric acid (11).

3.5

sulfate ($\rho=1.84\text{g/mL}$).

3.6

tartaric acid.

3.7

tin dichloride (250g/L). Weigh 25g of stannous chloride dihydrate in 150mL beaker, add hydrochloric acid (3.2) and treated with hydrochloric acid to dissolve (3.2) diluted to 100mL.

3.8

parathion mixed acid. sulfuric acid phosphoric acid water (151,570).

3.9

diphenylamine sodium solution (10g/L). Weigh 0.5g of sodium diphenylamine in 100mL beaker, dissolved in water and diluted to 50mL.

3.10

potassium dichromate ($1/6K_2Cr_2O_7$) standard titration solution. Weigh 1.4710g advance constant weight of 120 °C baseline potassium dichromate, placed 200mL beaker with a small amount of water dissolved and transferred to 1000mL volumetric flask, dilute with water to volume, and mix. This concentration is $c_{1/6K_2Cr_2O_7} = 0.03000mol/L$.

3.11 Ammonium ferrous sulfate standard titration solution

3.11.1

preparation. Weigh 11.7639g Ferrous ammonium sulfate $[(NH_4)_2Fe(SO_4)_2 \cdot 6H_2O]$ was dissolved in 300mL of sulfuric acid (15) was , Add water 700mL, and mix.

3.11.2

Calibration. accurate Pipette four potassium dichromate standard titration solution were placed in advance 20.00mL added 100mL of water, 5mL sulfur Phosphorus mixed acid 250mL beaker, with the following analysis step.

According to equation (1) calculate the standard ferrous ammonium sulfate titration solution of potassium dichromate standard titration solution titration coefficient (k).

$$k = V_{01}V_{02}$$