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

YS/T 227.6-2010

Replacing YS/T 227.6-1994

**Methods for chemical analysis of tellurium. Part 6:
Determination of copper content. Solid-liquid separate-flame
atomic absorption spectrophotometry**

碲化学分析方法 第6部分：铜量的测定固液分离-火焰原子吸收光谱法
(English Translation)

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Foreword

YS/T 227 "tellurium chemical analysis methods," a total of 12 parts.

- Part 1. Determination of bismuth content hydride generation - atomic fluorescence spectrometry;
- Part 2. Determination of aluminum content Chromazurol S- bromo cypylridinium micellar solubilization spectrophotometry;
- Part 3. Determination of lead content by flame atomic absorption spectrometry;
- Part 4. Determination of iron content - Phenanthroline spectrophotometric method;
- Part 5. determination of selenium content of 2,3-diaminonaphthalene spectrophotometry;
- Part 6. Determination of copper content of solid-liquid separation - flame atomic absorption spectrometry;
- Part 7. Determination of sulfur content by inductively coupled plasma atomic emission spectrometry;
- Part 8. magnesium, sodium content - Flame atomic absorption spectrometry;
- Part 9. Determination of tellurium content of potassium dichromate - ammonium ferrous sulfate volumetric method;
- Part 10. Determination of arsenic content by hydride generation - atomic fluorescence spectrometry;
- Part 11. Determination of silicon content of n-butanol silicon molybdenum blue spectrophotometric method;
- Part 12. bismuth, aluminum, lead, iron, selenium, copper, magnesium, sodium, arsenic content - Inductively coupled plasma atomic emission spectrometry.

Part is divided into 6 sections.

This section drafted in accordance with GB/T 1.1-2009 given rules.

The partial replacement of YS/T 227.6-1994 "determination of tellurium in copper content (Neocuproine - chloroform extraction photometric method)." versus YS/T 227.6-1994 compared, this section has the following changes.

--- Changed the measurement method, the use of solid-liquid separation - flame atomic absorption spectrometry;

--- Complements the precision, quality assurance and control provisions;

--- Complements the "test report" requirement.

The non-ferrous metal part by the National Standardization Technical Committee (SAC/TC243) centralized.

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1 Scope

This section YS/T 227 specifies the method for determination of tellurium copper content.

This section applies to the determination of copper content in tellurium. Measurement range. 0.0004% to 0.0060%.

2 Principle of the method

Sample dissolved in nitric acid, dilute nitric acid leaching of copper ions and most of the matrix isolation, air - atomic absorption spectrometer wave acetylene flame Long 324.8nm at measuring the absorbance of copper, the standard curve method to calculate the amount of copper.

3 Reagents

Unless otherwise indicated in the analysis using only recognized as analytical grade reagents and distilled or deionized water or equivalent purity.

Nitrate 3.1 (ρ 1.42g/mL).

3.2

nitric acid (11).

3.3

nitric acid (199).

3.4

copper standard stock solution. Weigh 1.0000g copper ($\geq 99.95\%$), placed in 200mL beaker, add 15mL of nitric acid (3.2), low-temperature heating to dissolve completely removing nitrogen oxides boil, cooled and transferred to 1000mL volumetric flask, 20mL of nitric acid was added (3.2), dilute to the mark and mix. 1mL solution containing 1mg of copper.

3.5

Copper standard solution. Weigh 5.00mL copper standard stock solution (3.4) in 100mL flask, add 2mL nitric acid (3.2), with Dilute with water to volume, and mix. This solution 1mL containing 50 μ g copper.

4 Instrument

Atomic absorption spectrometer, with copper hollow cathode lamp.

Under optimum working conditions for those who can reach the following indicators can be used.

--- Characteristic concentration. In line with the measurement of the sample solution matrix solution features copper concentration should be less than 0.025 μ g/mL;

--- Precision. standard solution with the highest concentration of 10 times the absorbance measurements, the standard deviation should not exceed the average absorbance of 1.0%;

With the lowest concentration of standard solution (not "zero" concentration of the standard) measuring the absorbance of 10 times, the standard deviation should not exceed the maximum 0.5% concentration of the standard average absorbance;

--- Linear curve. The curve is divided into five sections according to concentration, absorbance difference between the absorbance difference between the highest and the lowest segment of the segment Ratio of not less than 0.8.