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

YS/T 227.5-2010

Replacing YS/T 227.5-1994

**Methods for chemical analysis of tellurium. Part 5:
Determination of selenium content. 2, 3-Diamino naphthalene
spectrophotometry**

碲化学分析方法 第5部分：硒量的测定2,3-二氨基萘分光光度法

(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.

This is Part 5.

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

The partial replacement of YS/T 227.5-1994 "Determination of the amount of selenium tellurium (2,3-diaminonaphthalene photometric method)." And YS/T 227.5-Compared to 1994, this section has the following changes.

--- Measured by the scope of 0.0015% to 0.06% was adjusted to 0.0015% ~ 0.030%;

--- 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

YS/T of the provisions of the section 227 determination of tellurium content of selenium.

This section applies to the determination of tellurium content of selenium. Measurement range. 0.0015% to 0.030%.

2 Principle of the method

Samples with hydrochloric acid, nitric acid dissolved in about pH = 1 solution, ammonium citrate complex tellurium, 2,3-diaminonaphthalene as chromogenic reagent, in water Bath heating and selenium color forms a colored complex in a spectrophotometer at 490nm wavelength measured absorbance, calculated using the working curve method result.

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 (rho1.43g/mL).

3.2

hydrochloride (rho1.19g/mL).

3.3

Ammonia (rho0.90g/mL).

3.4

mixed acid. A 90mL hydrochloric acid (3.2) and 30mL of nitric acid (3.1) and mix before use formulation.

3.5

ammonium citrate solution (500g/L).

3.6

Disodium ethylenediaminetetraacetate solution (10g/L).

3.7 2,3-diaminonaphthalene solution (1g/L). Weigh 0.10g 2,3-diaminonaphthalene, placed in 200mL beaker, hydrochloric acid solution was added 50mL Solution (0.1mol/L), was heated to near boiling water bath for 5min dissolved out sufficiently stirred 5min, a solution of hydrochloric acid was added 50mL (0.1mol/L), Stir with a slow quantitative filter paper into a brown bottle, valid for one week.

3.8

Selenium standard stock solution. Weigh 0.1000g selenium ($\geq 99.95\%$), placed in a beaker of 100mL, 10mL of nitric acid was added (11), Low heat to dissolve, remove oxides of nitrogen, cooled and transferred to 1000mL volumetric flask, dilute with water to the mark. This solution 1mL Containing 100 μ g selenium.

3.9

Selenium standard solution. Pipette 30.00mL solution (3.8), placed in 100mL flask, diluted with water to the mark. This solution 1mL containing 30 μ g selenium.

4 Instrument

Spectrophotometer.