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YS

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

YS/T 226.12-2009

Replacing YS/T 226.15-1994

**Methods for chemical analysis of selenium. Part 12:
Determination of selenium content. Sodium thiosulphate
titrimetric method**

硒化学分析方法 第12部分：硒量的测定 硫代硫酸钠容量法
(English Translation)

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Foreword

YS/T 226 "selenium chemical analysis method" is divided into 13 parts.

- Part 1. Determination of bismuth content - Hydride Generation - Atomic Fluorescence Spectrometry
- Part 2. Determination of antimony content Hydride Generation - Atomic Fluorescence Spectrometry
- Part 3. Determination of aluminum content Chromazurol S- cetylpyridinium bromide spectrophotometric method
- Part 4. Determination of mercury content of dithizone - CTC colorimetric titration
- Part 5. Determination of the amount of silicon molybdenum blue spectrophotometry
- Part 6. Determination of sulfur content symmetrical diphenyl semicarbazide spectrophotometry
- Part 7. Determination of magnesium content - Flame atomic absorption spectrometry
- Part 8. Determination of copper content - Flame atomic absorption spectrometry
- Part 9. Determination of iron content by flame atomic absorption spectrometry
- Part 10. Determination of nickel content by flame atomic absorption spectrometry
- Part 11. Determination of lead content by flame atomic absorption spectrometry
- Part 12. Determination of the amount of selenium sodium thiosulfate volumetric method
- Part 13. silver, aluminum, arsenic, boron, mercury, bismuth, copper, cadmium, iron, gallium, indium, magnesium, nickel, lead, silicon, antimony, tin, tellurium, titanium, zinc content of electricity Inductively coupled plasma mass spectrometry this section YS/T Part 12 226.

The partial replacement of YS/T 226.15-1994 "determining the amount of selenium in selenium sodium thiosulfate volumetric method." And YS/T 226.15-1994 Compared to the

main section has the following changes.

--- Calibration standard solution of sodium thiosulfate to dichromate method.

--- Cancel precipitation process, the direct titration with sodium thiosulfate standard solution.

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

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Participated in the drafting of this section. Tongling Nonferrous Metals Group Holdings Co., Ltd., Beijing Nonferrous Metal Research Institute.

1 Scope

This section YS/T 226 specifies the method for determination of selenium in selenium content.

This section applies to the determination of selenium in selenium content. Measurement range. 98.0% to 99.0%.

2 Method summary

Sample decomposition with a mixed acid, the sulfuric acid medium, sodium thiosulfate standard titration solution was titrated. Towards the end iodide Potassium iodide reaction precipitated starch as indicator to the standard titration with sodium thiosulfate solution titrated blue color disappears as the end point.

3 Reagents

Unless otherwise specified, in this section are secondary distilled water, reagents were pure class distinctions.

3.1

urea.

3.2

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

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

3.4

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

3.5

sulfate (1 + 1).

3.6

sulfate (5 + 1).

3.7

potassium iodide solution (50g/L). using now.

3.8

starch solution (5g/L).

3.9

Sodium hydroxide solution (200g/L).

3.10

phenolphthalein ethanol solution (10g/L).

3.11

sodium thiosulfate standard titration solution (0.1mol/L).

3.11.1

preparation. Weigh 26g sodium thiosulfate ($\text{Na}_2\text{S}_2\text{O}_3 \cdot 5\text{H}_2\text{O}$), plus 0.2g of anhydrous sodium carbonate, dissolved in 1000mL of water, slow Slow boil 10min, remove the cooling. After filtration for two weeks.

3.11.2

Calibration. Weigh 0.1800g three dried at 120 °C to constant weight basis of potassium dichromate, placed iodometric flask, 25mL Dissolved in water, and 20mL sulfuric acid was added 2g of potassium iodide (3.6), shake; placed in dark place for 10min. Adding 150mL water, thiosulfate Sodium standard solution titration, was added 2mL starch solution (3.8) towards the end and continue titration until the solution turns from blue to light green. with when the blank test.

The concentration of sodium thiosulfate standard titration solution according to equation (1).

Where.

Ba --- sodium thiosulfate standard titration solution concentration, in units of moles per liter (mol/L);

Vp 1 --- Volume sodium thiosulfate standard titration solution, in milliliters (mL);