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

YS/T 226.7-2009

Replacing YS/T 226.11-1994

**Methods for chemical analysis of selenium. Part 7:
Determination of magnesium content. Flame atomic absorption
spectrometry**

硒化学分析方法 第7部分：镁量的测定火焰原子吸收光谱法
(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 contents Inductively Coupled Plasma Mass Spectrometry this section YS/T Section 7226 of.

The measured partial replacement of YS/T 226.11-1994 "selenium magnesium, copper, iron, nickel content - Flame atomic absorption spectrometric method" in the amount of

magnesium Given portion. Compared with YS/T 226.11-1994, this section has the following main changes.

- Measurement by the scope of 0.0002% ~ 0.002% revised to 0.0002% to 0.02%;
- Increased draw a calibration curve;
- Supplementary terms of quality assurance and control;
- Increase the repeatability limit, will be allowed to poor reproducibility limit.

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

This section is responsible for drafting unit. Jinchuan Group Limited.

Participated in the drafting of this section. Beijing Nonferrous Metal Research Institute, Guangzhou Nonferrous Metal Research Institute.

1 Scope

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

This section applies to the determination of selenium in magnesium content. Measurement range. 0.0002% to 0.02%.

2 Method summary

Sample decomposition with nitric acid at 320 °C volatile removing selenium, strontium salt added to eliminate the interference of coexisting elements, 3% hydrochloric acid medium, empty Gas - acetylene flame magnesium were measured absorbance at the wavelength of 285.2nm, and calculate the amount of magnesium by working curve method.

3 Reagents

Unless otherwise indicated, the second part of the water are distilled water, reagents were pure class distinctions.

Nitrate 3.1 (rho1.42g/mL).

3.2

hydrochloride (rho1.19g/mL).

3.3

hydrochloric acid (1 + 2).

3.4

strontium solution (10g/L). Weigh 30.43g strontium chloride (excellent pure), placed in 250mL beaker, dissolved in water. Moved to 1000mL Volumetric flask, dilute to the mark, shake.

3.5

Magnesium standard stock solution. Weigh 1.658g of magnesium oxide (high purity, at 800 °C after pre-ignition to constant weight in a desiccator and cooled to room Temperature) was placed in 250mL beaker, add 20mL of nitric acid (3.1), after driving the acid smoke removed, washed with water and dish table Beibi, cool, moved 1000mL volumetric flask, constant volume of water, this solution 1mL containing 1mg magnesium.

3.5.1

Magnesium standard solution A. Pipette 5.00mL magnesium standard stock solution (3.5), placed 1000mL volumetric flask, dilute to the mark with water Degree, shake. This solution 1mL containing 5μg magnesium.

3.5.2

Magnesium standard solution B. Pipette 25.00mL magnesium standard stock solution (3.5), placed 1000mL volumetric flask, dilute to the mark with water Degree, shake. This solution 1mL containing 25μg magnesium.

4 Instrument

4.1

Atomic absorption spectrometer, with a magnesium hollow cathode lamp.

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

--- Characteristic concentration. the test solution is consistent with the measurement of the solution, characterized in magnesium concentration of not more than 0.01μg/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%;

The lowest concentration of standard solution used (instead of "zero" standard solution) absorbance measured 10 times, and the standard deviation should not exceed the maximum concentration 0.5% of the mean absorbance of standard solution.

--- 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 0.85.

Atomic absorption spectrometer operating conditions refer to Table 1.

Table 1 instrument conditions

Wavelength/nm	lamp	current/mA	monochromator	passband/nm	observation height/mm
flame type	285.2	5	0.2	8	stoichiometric flame