

ICS 77.120.70
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**NONFERROUS METALS INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

YS/T 74.10-2010

Replacing YS/T 74.10-1994

**Methods of chemical analysis of cadmium. Part 10:
Determination of silver content. Flame atomic absorption
spectrometry**

镉化学分析方法 第10部分：银量的测定火焰原子吸收光谱法
(English Translation)

Issued on: November 22, 2010

Implemented on: March 1, 2011

Issued by: Ministry of Industry and Information Technology

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Foreword

YS/T 74-2010 "cadmium chemical analysis method" is divided into 11 parts.

--- Part 1. Determination of arsenic content by hydride generation - atomic fluorescence spectrometry;

--- Part 2. Determination of antimony content hydride generation - atomic fluorescence spectrometry;

--- Part 3. Determination of nickel content by electrothermal atomic absorption spectrometry;

--- Part 4. Determination of lead content by flame atomic absorption spectrometry;

--- Part 5. Determination of the amount of copper diethyl dithiocarbamate spectrophotometry lead;

--- Part 6. Determination of zinc content - Flame atomic absorption spectrometry;

--- Part 7. Determination of iron content of 1,10 phenanthroline spectrophotometry;

--- Part 8. Determination of thallium content of crystal violet spectrophotometry;

--- Part 9. Determination of tin content by hydride generation - atomic fluorescence spectrometry;

--- Part 10. Determination of the amount of silver by flame atomic absorption spectrometry;

--- Part 11. Inductively coupled plasma atomic arsenic, antimony, nickel, lead, copper, zinc, iron, thallium, tin and silver content of the emitted light Spectroscopy.

This section 10.

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

The partial replacement of YS/T 74.10-1994 "cadmium chemical analysis by flame atomic absorption spectrometry silver amount", this part of the original standard Quasi compared

to the main changes are as follows.

- Text format has been modified;
- Complements the precision, quality assurance and control provisions;
- Increase the warning prompt;
- Increasing the test report clause.

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 section 74 of the method for the determination of cadmium in silver content.

This section applies to the determination of cadmium in silver content. Measurement range. 0.00020% to 0.0050%.

2 Principle of the method

Sample decomposition with nitric acid, in dilute nitric acid medium, using air - acetylene flame atomic absorption spectrometer measured at a wavelength of 328.1nm Absorbance, using a calibration curve obtained by the amount of silver.

3 Reagents

Production of solutions and experiments with water are double-distilled water.

Nitrate 3.1 ($\rho=1.42\text{g/mL}$).

3.2

nitric acid (11).

3.3

Cadmium matrix solution. Weigh 20g metal cadmium ($w_{\text{Cd}}\geq 99.99\%$ and $w_{\text{Ag}}0.0001\%$), placed in 500mL beaker, fractional total Was added 80mL of nitric acid (3.2), until the

vigorous reaction was heated to dissolve completely, purge nitrogen oxides micro-boiling, cooled, transferred to 100mL capacity Dilution bottle with water to volume, and mix. This solution 1mL containing 200mg cadmium.

3.4

Silver standard stock solution. Weigh 0.1000g of metallic silver ($w_{Ag} \geq 99.99\%$), placed in a beaker of 200mL, 10mL of nitric acid was added (3.2), cover sheet pan, heated slowly to dissolve completely removed, washed with water and dish table cup wall, cooled and transferred to 1000mL volumetric flask.

100mL nitric acid (3.2), dilute to the mark and mix. This solution 1mL containing 100 μ g silver.

3.5

silver standard solution. Pipette 10.00mL silver standard stock solution (3.4) in 1000mL volumetric flask 2mL nitric acid (3.2), Dilute with water to volume, and mix. This solution 1mL containing 10 μ g silver.

4 Instrument

Atomic absorption spectrometer, with a silver hollow-cathode lamp.

Under optimum working conditions, who can reach the following indicators are, it can be used.

--- Sensitivity. measurement solution matrix consistent solution, features silver concentration should be less than 0.022 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% 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