

ICS 77.120.70
CCS H 13

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

YS/T 74.9-2010

Replacing YS/T 74.9-1994

**Methods of chemical analysis of cadmium. Part 9: Determination
of tin content. Hydride generation-atomic fluorescence
spectrometry**

镉化学分析方法 第9部分：锡量的测定氢化物发生-原子荧光光谱法
(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.

Part is divided into 9 parts.

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

The partial replacement of YS/T 74.9-1994 "cadmium chemical analysis Phenylfluorone - bromo cetyl trimethylamine spectrophotometry measuring tin Amount ", this section

compared with the original standards, the main changes are as follows.

- Analytical methods to hydride generation - atomic fluorescence spectrometry;
- Increase the warning prompt;
- Increased precision, quality assurance and control provisions;
- 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 the amount of tin.

This section applies to the determination of cadmium in the amount of tin. Measurement range. 0.00010% to 0.0050%.

2 Principle of the method

The sample was dilute nitric acid, sulfuric acid and dissolved by heating to take the best trioxide smoke. In sulfuric acid (199) medium, tin (IV) is also potassium borohydride Into the original tin hydride with argon gas into the quartz furnace atomizer, the fluorescence intensity was measured on a tin atomic fluorescence spectrometer.

3 Reagents

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

3.1

nitric acid (11), pure class distinctions.

3.2

sulfuric acid (11), pure class distinctions.

3.3

sulfuric acid (199), pure class distinctions.

3.4

thiourea - ascorbic acid solution. Weigh 5g thiourea, 5g ascorbic acid, dissolved in water and diluted to 100mL, and mix.

3.5

solution of potassium borohydride (15g/L). Weigh 7.5g of potassium borohydride, dissolved in 500mL of potassium hydroxide solution (5.0g/L), and mix well. use when existing service.

3.6

Storage tin standard solution. Weigh 0.1000g metal tin ($w_{\text{Sn}} \geq 99.99\%$) (washed with dilute hydrochloric acid prior to said surface oxide, then B Alcohol to dry thoroughly washed), plus 100mL sulfuric acid (3.2), low dissolved by heating, cooling, transferred to 1000mL volumetric flask, constant volume of water to the mark Degree, and mix. This solution 1mL containing 100 μg tin.

3.7

tin standard solution. Pipette 1.00mL tin standard stock solution (3.6) in 100mL flask, add 2mL of sulfuric acid (3.2), dilute Diluted to volume, and mix. This solution 1mL containing 1 μg tin.

3.8

Cadmium substrate solution (50g/L). Weigh 50g of high purity cadmium ($w_{\text{Cd}} \geq 99.999\%$), placed in 250mL beaker, dissolved in 100mL of Nitric acid (3.1), and concentrated to a small volume, transferred to 1000mL volumetric flask, dilute with water to volume, and mix.

Argon 3.9, the volume fraction of not less than 99.99%.

4 Instrument

Intermittent flow dual-channel non-dispersive atomic fluorescence spectrometer, atomic and tin hollow cathode lamps, intermittent flow instrument and computer with a quartz furnace Processing system.

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