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

YS/T 244.7-2008

**Chemical analysis methods of high purity aluminum. Part 7:
Determination of cadmium content by extraction-dithizone
photometric method**

高纯铝化学分析方法 第7部分：二硫腈萃取光度法测定镉含量

(English Translation)

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Foreword

YS/T 244 "Chemical analysis methods of high purity aluminum" is divided into nine sections.

- Part 1. phenanthroline - thiocyanate spectrophotometric determination of iron content;
- Part 2. molybdenum blue extraction and spectrophotometric determination of silicon content;
- Part 3. Two-antipyrine DAM - spectrophotometric determination of titanium content thiocyanate;
- Part 4. Butyl Rhodamine B spectrophotometric determination of gallium content;
- Part 5. Determination of copper, zinc and lead content anodic stripping voltammetry;
- Part 6. Catalytic manganese - sulfuric acid system through the determination of silver content;
- Part 7. dithizone extraction and spectrophotometric determination of cadmium content;
- Part 8. crystal violet extraction and spectrophotometric determination of indium content;
- Part 9. Determination of impurities by inductively coupled plasma mass spectrometry.

This is Part 7.

This part is YS/T 275-2000 "high purity" in the revised Appendix A, the main changes are as follows.

- Added "repeatability" clause;
- Increase the "quality assurance and control" clause.

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

This part of the Fushun Aluminum Co., Ltd., China Nonferrous Metals Industry Institute of Standards Metrology and Quality is responsible for drafting.

This part of the Fushun Aluminum Co. drafted.

1 Scope

This section specifies the determination method of high purity cadmium content.

This section applies to the determination of cadmium content in high-purity aluminum.

Measuring range. 0.00001% 0.00025%.

2 Method summary

Specimens with hydrochloric acid, nitric acid dissolution. In potassium cyanide - in the presence of tartaric acid in dithizone - chloroform extraction and separation, and then to disulfide Hydrazone Extraction - at the wavelength of 518nm at photometrically.

3 Reagents

Reagent preparation and analysis of water are deionized water and then purified by distillation quartz stiller.

3.1

ethanol, pure class distinctions.

3.2

nitrate (ρ 1.42g/mL), pure class distinctions.

3.3

hydrochloric acid (ρ 1.19g/mL), pure class distinctions.

3.4

hydrochloric acid (1 + 1), pure class distinctions.

3.5

hydrochloric acid (1 + 3), pure class distinctions.

3.6

potassium sodium tartrate solution (50g/L). After preparation should be slightly alkaline, filtered with dithizone - chloroform extraction solution (0.1g/L) to the organic phase is green, save the quartz vessel.

3.7

Sodium hydroxide solution (400g/L), pure class distinctions.

3.8

potassium cyanide solution (100g/L).

3.9

dithizone - chloroform solution (0.1g/L).

3.10

tartaric acid solution (20g/L), pure class distinctions.

3.11

chloroform.

3.12

hydroxylamine hydrochloride solution (250g/L), pure class distinctions.

3.13

dithizone - carbon tetrachloride solution (0.1g/L), diluted with carbon tetrachloride to 0.02g/L, when stored in the dark by using 2 days.

3.14

cadmium standard stock solution. Weigh 0.1000g cadmium (99.99%), placed in a beaker, covered with a watch glass, hydrochloric acid was added 10mL (3.4), was slowly heated up to complete dissolution, boiled for several minutes, cooled to room temperature. The solution is transferred to 1000mL volumetric flask, dilute to the mark with water Degree, and mix. This solution 1mL containing 0.1mg cadmium.

3.15

Cadmium standard solution. Pipette 10.0mL cadmium standard stock solution (3.14) in 100mL volumetric flask, dilute with water to volume, and mix.

Then from this solution Pipette 10.0mL solution in 100mL volumetric flask, dilute with water to volume, and mix. This solution containing 1mL 1 μ g cadmium.

4 Instruments and equipment

Spectrophotometer.

5 Sample

Sample 5.1 with hydrochloric acid (3.5) soaked for more than 3h, washed with deionized water, and dried over anhydrous ethanol (3.1) a dip.