

ICS 77.120.99
CCS H 13

YS

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

YS/T 276.4-2011

Replacing YS/T 276.4-1994

**Methods for chemical analysis of indium. Part 4: Determination
of aluminium content. Chromazurol S photometry**

铟化学分析方法 第4部分：铝量的测定铬天青S分光光度法

(English Translation)

Issued on: December 20, 2011

Implemented on: July 1, 2012

Issued by: Ministry of Industry and Information Technology

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Foreword

YS/T 276 "indium chemical analysis methods," including a total of 11 parts.

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

--- Part 2. Determination of tin content Phenylfluorone - bromo cetyl trimethylamine spectrophotometry;

--- Part 3. Determination of the amount of thallium methyl green spectrophotometry;

--- Part 4. Determination of the amount of chrome aluminum Azure S Spectrophotometry;

--- Part 5. Determination of iron content of 1. electrothermal atomic absorption spectrometry Method 2. Flame atomic absorption spectrometry;

--- Part 6. copper, cadmium, zinc content - Flame atomic absorption spectrometry;

--- Part 7. Determination of lead content by flame atomic absorption spectrometry;

--- Part 8. Determination of bismuth content 1. Hydride Generation - Atomic Fluorescence Spectrometry Method 2. Flame atomic absorption spectrometry;

--- Part 9. Determination of the amount of indium Na₂EDTA titration;

--- Part 10. bismuth, aluminum, lead, iron, copper, cadmium, tin, thallium content - Inductively coupled plasma atomic emission spectrometry;

--- Part 11. arsenic, aluminum, lead, iron, copper, cadmium, tin, thallium, zinc, bismuth content - Inductively Coupled Plasma Mass Spectrometry.

This section is in accordance with the rules of GB/T 1.1 gives drafted.

This is Part 4.

The partial replacement of YS/T 276.4-1994 "indium chemical analysis of Chromium Azure S Spectrophotometry Determination of aluminum content", and YS/T 276.4-Compared to 1994, this section has the following changes.

- Measuring range extended from 0.0005% ~ 0.0015 to 0.00030% - 0.0015%;
- Complements the precision, quality assurance and control provisions;
- Complements the "test report" requirement.

The non-ferrous metal part by the National Standardization Technical Committee (SAC/TC243) centralized.

1 Scope

This section YS/T 276 specifies the method for determination of indium aluminum content.

This section applies to the determination of indium aluminum content. Determination of the range of 0.00030% to 0.0015%.

2 Principle of the method

Sample decomposition with hydrobromic acid in 5.5mol/L hydrobromic medium with butylacetate extraction of indium, trace iron with ascorbic acid masking, in pH5 ~ pH5.8 solution, aluminum and CAS S- bromo cylypyridinium colored complex is formed in the sub-wavelength photometer Absorbance was measured at 640nm.

3 Reagents

Unless otherwise indicated, used in the analysis confirmed only for the gifted class pure reagents and distilled or deionized water or equivalent purity.

3.1

sodium hydroxide.

3.2

hydrochloride (rho1.19g/mL).

3.3

hydrobromide (rho1.42g/mL).

3.4

Ammonia (rho0.90g/mL).

3.5

butyl acetate.

3.6

hydrochloric acid solution (13).

3.7

hydrobromic acid solution (5.5mol/L). Pipette 404mL hydrobromide (3.3) in 500mL volumetric flask, dilute with water to volume, and mix.

3.8

ammonia (12).

3.9 2,4-dinitro-phenol solution (1g/L), formulated with ethanol.

3.10

ascorbic acid solution (1g/L), the time is now equipped with.

3.11

Chromium Azure S solution (0.3g/L).

3.12

tetradecyl bromo pyridine solution (1.5g/L).

3.13

sodium acetate solution (100g/L). Weigh 100g of anhydrous sodium acetate dissolved in water, 1g of sodium thiosulfate, until completely dissolved, Diluted with water to 1000mL, and mix.

3.14

Aluminum Standard stock solution (200µg/mL). Weigh 0.2000g of aluminum ($w \geq 99.99\%$), placed in a polyethylene beaker, add 20mL water, 3g of sodium hydroxide, and, after complete dissolution, add 100mL of hydrochloric acid, followed by stirring to dissolve the precipitate, was cooled to room temperature. Moved to 1000mL Volumetric flask, dilute with water to volume, and mix. This solution 1mL containing 200µg aluminum.