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

YS/T 276.9-2011

**Methods for chemical analysis of indium. Part 9: Determination
of indium content. EDTA titrimetric method**

铟化学分析方法 第9部分：铟量的测定Na₂EDTA滴定法

(English Translation)

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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 section YS/T Section 9276 of.

The non-ferrous metal part by the National Standardization Technical Committee (SAC/T 243) focal point.

1 Scope

This section YS/T 276 specifies the method for determination of the amount of indium in indium.

This section applies to the determination of the amount of indium in indium. Determination of the range of 95.00% ~ 99.50%.

2 Principle of the method

Samples with hydrochloric acid, nitric acid decomposition in tartaric acid solution pH2.5 or so in order to ascorbic acid reduced iron (III) to Fe (II), with dimethyl Phenol orange as indicator, titrate with standard Na₂EDTA combined amount of indium, bismuth, indium amount after subtracting the determination of bismuth content conversion derived.

3 Reagents

Unless otherwise indicated in the analysis using recognized as excellent pure reagents and distilled or deionized water or equivalent purity.

3.1

hydrochloric acid ($\rho = 1.19\text{g/mL}$).

3.2

nitric acid solution (11).

3.3

sulfuric acid solution (11).

Aqueous ammonia 3.4 ($\rho = 0.90\text{g/mL}$).

3.5

ascorbic acid.

3.6

tartaric acid solution (200g/L).

3.7

xylene orange solution (1g/L).

3.8

disodium edetate (by Na₂EDTA) standard solution (0.054mol/L).

3.8.1

preparation. 2.0g of sodium hydroxide dissolved in water first, then add 40.2gNa₂EDTA to dissolve completely transferred to 2000mL Volumetric flask, dilute to the mark, mix, place three days later calibration.

3.8.2

Calibration. 3 parts by weigh 0.300g indium ($w \geq 99.99\%$) placed in a triangular 500mL beaker, add 10mL solution of nitric acid, Low dissolved completely, add 6mL sulfuric acid solution (3.3), a small amount of water purged Beibi, low temperature heating to take place nearly dry white smoke of sulfur trioxide, Remove coolish, a small amount of water purged Beibi. 5.4.3 - 5.4.4 by the following operation. Make a blank test simultaneously.

According to equation (1) calculate the standard solution Na₂EDTA molar concentration (mol/L).

$c = m_1 (V - V_0) \times 0.11482$ (1) where.

C --- Na₂EDTA standard solution concentration, expressed in moles per liter (mol/L);

m₁ --- weighed indium mass in grams (g);

0.11482 --- equivalent mass in grams of indium and 1mLNa₂EDTA standard solution;