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

YS/T 276.5-2011

Replacing YS/T 276.5-1994

**Methods for chemical analysis of indium. Part 5: Determination
of iron content. Method 1: Graphite furnace atomic absorption
spectrometry. Method 2**

铟化学分析方法 铁量的测定

(English Translation)

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Foreword

YS/T 276 "indium chemical analysis method" is divided into 11 sections as follows.

- 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 drafted in accordance with the rules of GB/T 1.1 is given.

This section YS/T Part 5 276.

The partial replacement of YS/T 276.5-1994 "Methods for chemical analysis of indium atomic absorption spectrophotometry of copper, iron, zinc, cadmium amount" of Iron

Determination of the amount of the part. Compared with YS/T 276.5-1994, this section has the following changes.

- Added electrothermal atomic absorption determination of;
- Measured by the scope of 0.0005% to 0.15% expansion of 0.0003% 0.200%;
- 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 iron content of indium.

This section applies to the determination of indium in iron content. Determination of the range of 0.00030% to 0.0030%.

2 Principle of the method

Sample dissolved in nitric acid, a volume of the test solution injected into the graphite furnace atomic absorption spectrometer measured at a wavelength of 248.3nm iron Absorbance.

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.

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

3.2

nitric acid solution (1:1), MOS level.

3.3

iron standard stock solution. Weigh 0.1000g metallic iron ($w\geq 99.99\%$), placed in 300mL beaker, 80mL nitrate solution (3.2), dissolved by heating, boiling rid of nitrogen oxides, the cooling removed and transferred to 2500mL volumetric flask, dilute to the mark with water and mix. this 1mL solution containing 40 μg iron.

3.4

iron standard solution. Pipette 10.00mL iron standard stock solution (3.3), placed 1000mL volumetric flask, nitric acid solution was added 50mL Solution (3.2), dilute to the mark and mix. This solution 1mL containing 400ng iron.

4 Instrument

Electrothermal atomic absorption spectrometer. with electrothermal atomizer, micro sampler or autosampler, iron and hollow cathode lamp background correction Means.

Under optimum working conditions, who can be used to achieve the following indicators.

--- Quality features. the measurement of the sample solution in the matrix phase consistent solution features quality of the iron should be less than 16pg;

--- Precision. measuring the absorbance of 11 with the highest concentration of the standard solution, the relative standard deviation should not exceed 1.0%; the lowest concentration Degree standard solution (not "zero" concentration of the standard) measuring the absorbance of 11 times, the relative standard deviation should not exceed 0.5%;

--- Linear curve. The curve is divided into five sections according to concentration, absorbance difference between the absorbance difference between the highest and the lowest segment of the segment Ratio of not less than 0.8.