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YS

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

YS/T 569.8-2015

Replacing YS/T 569.8-2006

**Methods for chemical analysis of thallium. Part 8: Determination
of indium content. Crystal violet benzene extraction
spectrophotometry**

铊化学分析方法 第8部分：铟量的测定结晶紫苯萃取分光光度法

(English Translation)

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Foreword

YS/T 569 "Thallium chemical analysis method" is divided into 10 parts.

- Part 1. Determination of copper content - Copper reagent Trichloromethane extraction spectrophotometric method;
- Part 2. Determination of iron content - Phenanthroline spectrophotometric method;
- Part 3. Determination of mercury content - Dithizone carbon tetrachloride extraction spectrophotometric method;
- Part 4. Determination of zinc content - Dithizone benzene extraction spectrophotometric method;
- Part 5. Determination of cadmium content - Dithizone benzene extraction spectrophotometric method;
- Part 6. Determination of lead content - Dithizone benzene extraction spectrophotometric method;
- Part 7. Determination of aluminum content - Chromazu S spectrophotometric method;
- Part 8. Determination of indium content - Crystalline Purple Benzene extraction spectrophotometric method;
- Part 9. Determination of silicon content - Mo - Mo - blue isopentanol extraction spectrophotometric method;

Part 10. Determination of thallium content Na₂EDTA titration.

This section is part 8 of YS/T 569.

This part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part of the replacement of YS/T 569.8-2006 "thallium determination of indium

(crystalline purple benzene extraction spectrophotometric method)" (the original GB 2592.8-

1981).

This section has the following changes as compared with YS/T 569.8-2006.

--- the text format has been modified;

--- Increased test report requirements.

This part of the National Nonferrous Metals Standardization Technical Committee (SAC/TC243) proposed and centralized.

This part of the drafting unit. Hunan Institute of Nonferrous Metals Exploration, Hunan Shuikoushan Nonferrous Metals Group Co., Ltd., China Nonferrous Guilin Mineral Geology Research Institute Co., Ltd., Beijing Mining and Metallurgy Research Institute, Zhuzhou Smelting Group Co., Ltd.

This part of the main drafters. Wei Xianghui, Li Jinyan, Deng Shupe, Zeng Guangming, Jie Hui, Xiong Chuanxin, Zhou Qian, Feng Xianjin, Shi Yehong, Tang Xiuyun.

This part of the previous version of the standard to replace the release of the situation.

--- GB 2592.8-1981;

--- YS/T 569.8-2006.

Methods for chemical analysis of thallium Part 8. determination of indium content
Crystalline Purple Benzene Extraction Spectrophotometric Method

1 Scope

This part of YS/T 569 specifies the method for the determination of indium in thallium.

This part is applicable to the determination of indium in thallium. Measurement range. 0.0002% ~ 0.0010%.

2 Method summary

The sample was dissolved in nitric acid, and in the dilute sulfuric acid and potassium iodide medium, the complex formed by indium and crystal violet was extracted with benzene, the absorbance was measured at 615 nm long.

3 Reagent

3.1

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

3.2

Hydrochloric acid (1 1).

3.3

Sulfuric acid ($\rho = 1.84 \text{ g/mL}$).

3.4

Sulfuric acid (1 1).

3.5

Sulfuric acid (1 5).

3.6

nitric acid (1 1).

3.7

hydrobromic acid ($\rho = 1.49 \text{ g/mL}$).

3.8 Hydrobromic acid (1 1)

3.9 Sulfuric acid - nitric acid mixed acid (1 1).

3.10 Hydrogen peroxide (30%).

3.11 Potassium iodide.

3.12 potassium iodide solution (2mol/L). Weigh 166g potassium iodide dissolved in water and diluted with water to 500mL, shake.

3.13 sodium thiosulfate solution (200g/L). with the current distribution.

3.14 sodium thiosulfate solution (50g/L). with the current allocation.

3.15 crystal violet solution (1g/L).

3.16 isopropyl ether.

3.17 Butyl acetate.

3.18 Benzene

3.19 indium standard storage solution. Weigh 0.1000g metal indium ($w_{\text{In}} \geq 99.95\%$) placed in 200mL beaker, add 10mL salt Acid (3.2), dissolved in low temperature heating, add 5mL sulfuric acid (3.4), heating and evaporating to white smoke, cooling. Add water to dissolve, cool, move into 1000mL Capacity bottle, diluted with water to the mark, shake. This solution 1mL containing indium 100 μg .

3.20 Indium standard solution. Remove 10.00mL indium standard storage solution (3.19),

placed in 500mL volumetric flask, diluted with water to the mark, shake uniform. This solution 1mL containing indium 2 μ g.