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

YS/T 569.4-2015

Replacing YS/T 569.4-2006

**Methods for chemical analysis of thallium. Part 4: Determination
of zinc content. Dithizone benzene spectrophotometry**

铊化学分析方法 第4部分：锌量的测定 双硫腙苯萃取分光光度法

(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 chloroform extraction spectrophotometry;
- Part 2. Determination of iron content - Phenanthroline spectrophotometric method;
- Part 3. Determination of mercury content of Diphenylthiocarbazone extraction spectrophotometry;
- Part 4. Determination of zinc content of benzene extraction dithizone spectrophotometry;
- Part 5. Determination of cadmium content of benzene extraction dithizone spectrophotometry;
- Part 6. Determination of lead content of benzene extraction dithizone spectrophotometry;
- Part 7. Determination of the amount of chrome aluminum Azure S Spectrophotometry;
- Part 8. Determination of indium content of crystal violet benzene extraction spectrophotometry;
- Part 9. Determination of the amount of silicon molybdenum blue isoamyl alcohol extraction spectrophotometric method;
- Part 10. Determination of the amount of thallium Na₂EDTA titration.

This section YS/T Part 4 569.

This section drafted in accordance with GB/T 1.1-2009 given rules.

The partial replacement of YS/T 569.4-2006 "Thallium - Determination of zinc content (benzene extraction dithizone photometric method)" (the original GB 2592.4-1981).

This portion of YS/T 569.4-2006 compared to the main changes are as follows.

- Text format has been modified;

--- Increased test reporting requirements.

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

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1 Scope

YS/T 569 This part provides for determination of zinc content of thallium.

This section applies to the determination of zinc content of thallium. Measurement range. 0.0005% to 0.015%.

2 Method summary

The sample is dissolved in nitric acid, at a pH of 4.8 to 5.1 in acetic acid - sodium acetate medium, zinc and dithizone can generate red complex Wash was extracted benzene, excess dithizone a dilute sodium sulfide solution was removed, the organic phase was measured at a wavelength of 540nm at its absorption spectrophotometer Luminosity.

3 Reagents

3.1

nitric acid ($\rho = 1.42\text{g/mL}$), of high purity.

3.2

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

3.3

sulfate ($\rho = 1.84\text{g/mL}$), of high purity.

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

3.5

Hydrogen peroxide (30%), pure class distinctions.

3.6

isopropyl ether.

3.7

benzene.

3.8

thiourea saturated solution.

3.9

sulfuric acid - nitric acid mixture (11).

3.10

nitric acid (11).

3.11

hydrochloric acid (11).

3.12

ammonia (11).

3.13

potassium iodide solution (200g/L). stored in a plastic bottle.

3.14

sodium thiosulfate solution (200g/L). Weigh 20g sodium thiosulfate, dissolved in water and diluted to 100mL, transferred to a separatory funnel in with 0.05g/L Diphenylthiocarbazone solution was extracted, the organic phase was extracted until after the green. The aqueous phase was washed with chloroform oscillation the organic phase was obviously not to the green, and then 10mL of carbon tetrachloride oscillation washed once with filtered water in plastic bottles.

3.15

acetic acid - sodium acetate buffer (pH value of 4.8 to 5.1). Weigh 20g of sodium acetate were dissolved in 100mL of water, ice was added 7mL B Dilute acid, add water to 200mL, press thiosulfate (3.14) purification method of purification.

3.16

sodium sulfide solution (0.4g/L). Weigh 1g sodium sulfide, dissolved in water and diluted to 100mL. Pipette solution 4mL, added 96mL of water and shake. The time is now equipped with.

3.17

bromophenol blue ethanol solution (1g/L).

3.18

pairs Diphenylthiocarbazone benzene solution (0.05g/L). Weigh 0.25g of purified dithizone, dissolved in 100mL benzene, placed in a brown bottle and shake.