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YS

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

YS/T 569.5-2015

Replacing YS/T 569.5-2006

**Methods for chemical analysis of thallium. Part 5: Determination
of cadmium content. Dithizone benzene extraction
spectrophotometry**

铊化学分析方法 第5部分：镉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 569 Part 5.

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

The partial replacement of YS/T 569.5-2006 "Thallium - Determination of cadmium content (benzene extraction dithizone photometric method)" (formerly GB 2592.5-

1981). This portion of YS/T 569.5-2006 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 thallium in cadmium content.

This section applies to the determination of thallium in cadmium content. Measurement range. 0.0005% to 0.035%.

2 Method summary

Sample dissolved in nitric acid, sodium hydroxide medium 2mol/L, the red cadmium complexes formed with dithizone can be quantitatively extracted benzene, Excess dithizone may be washed with dilute ammonia is removed, the organic phase was measured absorbance at 520nm wavelength spectrophotometer.

3 Reagents

3.1

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

3.2

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

3.3

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

3.4

hydrochloride (11).

3.5

nitric acid (11).

3.6

Aqueous ammonia (11).

3.7

ammonia (199).

3.8

sulfuric acid - nitric acid mixture (11).

3.9

ascorbic acid.

3.10

isopropyl ether.

3.11

benzene.

3.12

CTC.

3.13

hydrogen peroxide (30%), pure class distinctions.

3.14

Sodium hydroxide solution (200g/L).

3.15

pairs Diphenylthiocarbazone benzene solution (0.05g/L). Weigh 0.25g of purified dithizone was added 100mL of benzene was dissolved, placed in a brown bottle, shake uniform. Pipette 2mL of the solution, placed in a brown bottle, add 98mL benzene, shake, now equipped with time.

Dithizone purification. Weigh 1g dithizone dissolved in 100mL of chloroform, and the solution was filtered in a separating funnel with 100mL ~ 200mL ammonia (3.7) oscillation 1min ~ 2min, after standing layer, the aqueous phase was transferred to a beaker, the above operation is repeated 2 to 4 times. Water Consistency and. After filtration cotton, acidified with hydrochloric acid to precipitate completely dithizone, sand core crucible with suction, washed with water 3 to 4 times, in dithizone 40 °C after drying in a dryer stored.

3.16

pairs Diphenylthiocarbazone solution (0.05g/L). Weigh 0.25g dithizone (purified) was added 100mL of carbon tetrachloride was dissolved, set in a brown bottle. Pipette 2mL of the solution, placed in a brown bottle, add 98mL of carbon tetrachloride, shake with a time now equipped.

3.17

ammonium citrate solution (500g/L). Weigh 50g ammonium citrate, dissolved in water and diluted to 100mL, 500mL dispenser placed drain