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

YS/T 569.10-2015

Replacing YS/T 569.10-2006

Methods for chemical analysis of thallium. Part 10: Determination of thallium content. Na2EDTA titration

铊化学分析方法 第10部分：铊量的测定 Na2EDTA滴定法

(English Translation)

Issued on: April 30, 2015 **Implemented on: October 1, 2015**

Issued by: Ministry of Industry and Information Technology

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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 10.

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

The partial replacement of YS/T 569.10-2006 "Thallium - Determination of thallium content (EDTA volumetric method)" (formerly GB 2592.10-1981). this Section compared with YS/T 569.10-2006, have the following main changes.

--- Text format has been modified;

--- Increased test reporting requirements.

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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 specifies the determination of the amount of thallium in thallium.

This section applies to the determination of the amount of thallium in thallium. Measuring range. 95% to 99.5%.

2 Method summary

The sample is dissolved in nitric acid, sulfuric smoke, acid medium at a pH of 1.8 to 2, with xylenol orange as indicator, with EDTA Standard solution titration, determination of the amount of thallium.

3 Reagents

3.1
potassium persulfate.

3.2
ammonium hydrogen fluoride.

3.3
sulfate (rho = 1.84g/mL).

3.4
sulfurous acid (rho = 1.03g/mL).

Aqueous ammonia 3.5 (rho = 0.90g/mL).

3.6
nitric acid (11).

3.7
Sodium hydroxide solution (400g/L).

3.8
lanthanum nitrate solution (50g/L).

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3.9
acid solution (200g/L).

3.10
XO solution (2g/L).

3.11
EDTA standard solution (0.02mol/L).

3.11.1
preparation. Weigh disodium ethylenediaminetetraacetate (EDTA) 7.5g, placed in 500mL beaker, 300mL of hot water to dissolve, cooled to Room temperature, transferred to 1000mL volumetric flask, dilute to the mark, shake spare.

3.11.2
Calibration. Weigh 0.1500g ~ 0.1600g metal thallium (wTl>=99.99%), placed in 300mL beaker, add 2mL ~ 5mL cold nitric acid (3.6) to dissolve. Added 3mL ~ 4mL sulfuric acid (3.3) and heated to take the thick white smoke, removed, cooled, washed with water and blow surface Dish and cup wall. Add water to about 120mL, 1g of potassium persulfate (3.1) heated to boiling 8min ~ 10min, removed immediately with running water Cooling with ammonia (3.5) and to just appear brown precipitate, was added 20mL acid solution (3.9), 1 to 2 drops of xylenol orange solution (3.10), with EDTA standard solution (3.11.1) titrate immediately turned bright yellow to red as the end point. According to equation (1) to calculate titer.

Where.

T --- EDTA standard solution titration of thallium, in units of grams per milliliter (g/mL);

m0 --- said to take quality metal thallium, in grams (g);

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