

ICS 77.120.99
CCS H 63

YS

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

YS/T 568.4-2008

Replacing YS/T 568.4-2006

**Chemical analysis methods for zirconium oxide and hafnium
oxide. Determination of aluminium content. Chronic
azurol-S-tetradrcylpyridine chloride spectrophotometric method**

氧化锆、氧化铪化学分析方法 铝含量的测定 铬天青S-氯化十四烷基吡啶光度法

(English Translation)

Issued on: March 12, 2008

Implemented on: September 1, 2008

Issued by: National Development and Reform Commission

Table of Contents

- Foreword
- 1 Scope
- 2 Method summary
- 3 Reagents

Foreword

YS/T 568 "zirconium, hafnium oxide chemical analysis method" is divided into 11 parts.

- Part 1. Determination of zirconium oxide and hafnium content of mandelic acid gravimetric method;
- Part 2. Determination of iron content sulfonic acid spectrophotometry;
- Part 3. Determination of silicon content - Molybdenum blue spectrophotometric method;
- Part 4. Determination of aluminum content of chromium azure S- cypyrindinium chloride spectrophotometry;
- Part 5. Determination of sodium content by flame atomic absorption spectrometry;
- Part 6. Determination of the amount of titanium di Zhao DAM spectrophotometry;
- Part 7. Determination of phosphorus content of antimony salt - ascorbic acid - phosphorus molybdenum blue spectrophotometric method;
- Part 8. zirconia aluminum, calcium, magnesium, manganese, sodium, nickel, iron, titanium, zinc, molybdenum, vanadium, hafnium content - Inductively coupled plasma fat Emission spectrometry;
- Part 9. hafnium oxide of aluminum, calcium, magnesium, manganese, sodium, nickel, iron, titanium, zinc, molybdenum, vanadium, zirconium content - Inductively coupled plasma fat Emission spectrometry;
- Part 10. Determination of manganese content - Potassium periodate spectrophotometric method;
- Part 11. Determination of alpha- linked furoylhydrazone nickel dioxime spectrophotometric method.

This is Part 4.

The partial replacement of YS/T 568.3-2006 "zirconium oxide, hafnium determination of

aluminum content" (formerly GB/T 2590.10-1981).

This portion of YS/T 568.3-2006 compared to the main changes are as follows.

--- Added "7.1 repeatability" clause;

--- Added "8 Quality assurance and control" clause.

The non-ferrous metal part by the National Standardization Technical Committee and centralized.

This part by the Beijing Nonferrous Metal Research Institute, China Nonferrous Metals Industry Institute of Standards Metrology and Quality is responsible for drafting.

1 Scope

This section provides zirconium oxide and hafnium oxide determination of aluminum content.

This section applies to the determination of zirconium oxide, hafnium oxide and aluminum content. Measurement range. 0.005% to 0.2%.

2 Method summary

Sample with sulfuric acid, ammonium sulfate dissolved, N- -N- benzoyl phenylhydroxylamine chloroform solution was extracted separating body zirconium, hafnium and iron, titanium and other dry Disturbing elements. After separation, the residual iron by phenanthroline morpholino, ascorbic acid masking. In pH5.8 acetic acid - sodium acetate medium, aluminum and CAS S, cypyrindinium chloride to form a colored complex in a spectrophotometer at a wavelength of 630nm measured absorbance.

If the sample contains a small amount of uranium, thorium, sodium carbonate solution may be added to eliminate the influence upon color.

3 Reagents

3.1

ammonium sulfate, pure class distinctions.

3.2

sulfate (rho1.84g/mL), pure class distinctions.

3.3

nitrate (rho1.42g/mL), pure class distinctions.

3.4

chloroform.

3.5

hydrochloric acid (1 + 19).

Ammonia 3.6 (1 + 1).

3.7

Chromazurol S- cypyrindinium chloride solution. Weigh 0.3g Chromium Azure S and 2g cypyrindinium chloride were dissolved in a small amount Water and then combined and diluted with water to 1000mL, and mix.

3.8

phenanthroline morpholino solution (10g/L).

3.9

ascorbic acid solution (10g/L). the time is now equipped with.

3.10 2,4-dinitrophenol solution (1g/L). Weigh 0.1g 2,4- dinitrophenol dissolved in 100mL of ethanol.

3.11

acetic acid - sodium acetate buffer solution (pH5.8). Weigh 90.2g of anhydrous sodium acetate, dissolved in water, was added 6.0mL glacial acetic acid, washed with water Moved into 1000mL volumetric flask, and dilute to the mark.

3.12

N- benzoyl phenylhydroxylamine -N- (BPHA) chloroform solution (25g/L). Weigh 10g BPHA, was dissolved in 400mL trichloroformate Dioxane.

3.13

aluminum standard solution.

3.13.1

weighed 1.0000g of aluminum [(Al) > 99.9%], placed in a polyethylene beaker, add 20mL water, 3g of sodium hydroxide, Wait until the complete dissolution with hydrochloric acid (rho1.19) slowly neutralized to precipitate, and excess 20mL, stirring constantly to dissolve. Cooling water Moved into 1000mL volumetric flask, and dilute to the mark. 1mL solution containing 1mg aluminum.

3.13.2

Pipette 25.00mL solution (3.13.1) into 250mL volumetric flask, was added 0.5mL, hydrochloric acid (rho1.19g/mL), washed with water Dilute to the mark. This solution 1mL

containing 100 μ g aluminum.

3.13.3

Pipette 25.00mL solution (3.13.2), placed in 250mL volumetric flask, was added 0.5mL of hydrochloric acid (ρ 1.19g/mL), washed with water Dilute to the mark. This solution 1mL containing 10 μ g aluminum.