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YS

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

YS/T 574.6-2009

Replacing YS/T 574.6-2006

**Methods for chemical analysis of zirconium powder for
electro-vacuum uses. The chrome azurol S spectrophotometric
method for determination of aluminium**

电真空用锆粉化学分析方法铬天青S分光光度法测定铝量

(English Translation)

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Foreword

YS/T 574 "Methods for chemical analysis of zirconium powder for electro - vacuum" is divided into eight sections.

--- Determination of the total amount of zirconium and zirconium active YS/T 574.1 electric vacuum zirconium powder - Gravimetric method;

--- YS/T 574.2 electric vacuum Chemical analysis of zirconium powder sulfosalicylic acid spectrophotometric determination of iron content;

--- Determination of silicon content YS/T 574.3 electric vacuum chemical analysis of zirconium powder Molybdenum blue spectrophotometric method;

--- YS/T 574.4 electric vacuum zirconium powder chemical analysis of molybdenum blue spectrophotometric determination of phosphorus content;

Emission spectrometry measurement of calcium, magnesium content --- YS/T 574.5 electric vacuum zirconium powder chemical analysis by inductively coupled plasma;

--- YS/T 574.6 electric vacuum zirconium powder chemical analysis of Chromium Azure S spectrophotometric determination of aluminum content;

--- YS/T 574.7 electric vacuum Chemical analysis of zirconium powder with methylene blue spectrophotometric determination of sulfur content;

Determination of the amount of hydrogen heating thermal conductivity method --- YS/T 574.8 electric vacuum Chemical analysis of zirconium powder with an inert atmosphere.

This section YS/T 574 Part 6.

The partial replacement of YS/T 574.6-2006 "power vacuum zirconium powder of chromium azure S spectrophotometric determination of aluminum" (formerly GB/T 3256.6-1982).

This portion of YS/T 574.6-2006 compared to the main changes are as follows.

--- The measurement range of 0.01% to 0.10% of the expansion of 0.005% to 0.10%;

--- Complements the precision and quality assurance and control provisions.

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

This in part by Western Metal Materials Co., Ltd., China Nonferrous Metals Industry Institute of Standards Metrology and Quality is responsible for drafting.

This part by CITIC Jinzhou Ferroalloy Co., Ltd., Northwest Nonferrous Metal Research Institute participated in the drafting.

1 Scope

This section specifies the determination of zirconium powder for electro - vacuum aluminum content.

This section applies to the determination of zirconium powder for electro - vacuum uses aluminum content. Measurement range (mass fraction). 0.005% to 0.10%.

2 Principle of the method

Samples with sulfuric acid and ammonium sulfate dissolved in hydrochloric acid medium to CUPFERRON separate zirconium, iron and other interfering elements. Destruction of organic matter with nitric acid, Zn-EDTA masking residual iron to hexamethylenetetramine as a buffer, aluminum and chrome azure S generated purple complex spectrophotometer Measuring the absorbance at 550nm.

3 Reagents

3.1

ammonium sulfate.

3.2

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

3.3

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

3.4

HCl (1 + 1).

3.5

hydrochloric acid (5 + 95).

Nitrate 3.6 ($\rho=1.42\text{g/mL}$).

3.7

Ammonia (rho0.90g/mL).

Ammonia 3.8 (1 + 1).

3.9

Sodium hydroxide solution (200g/L). stored in a polyethylene bottle.

3.10

CUPFERRON solution (100g/L). the time is now equipped with.

3.11

Chromium Azure S solution (0.5g/L). Weigh 0.2g chrome azure S, was added 300mL ethanol and 100mL water dissolve.

3.12

hexamethylenetetramine solution (400g/L).

3.13

Zn-EDTA solution.

3.13.1

Weigh 16.3g of anhydrous zinc chloride, 200mL of water was added to dissolve the other weighed 37.2g disodium ethylenediamine tetraacetate (EDTA), plus Into 700mL of water and 15mL aqueous ammonia (3.7) were dissolved. Under constant stirring solution of zinc chloride injection, adjusted with hydrochloric acid (3.4) and ammonia (3.8) to pH4 ~ pH5, moved into 1000mL volumetric flask, dilute with water to volume, and mix.

3.13.2

Pipette 10mLZn-EDTA solution (3.13.1) into 100mL volumetric flask, dilute with water to volume, and mix.

3.14

aluminum standard stock solution. Weigh 0.1000g placed in 250mL aluminum polyethylene cup, sodium hydroxide solution was added 10mL (3.9), heated and dissolved in a water bath. Was added 100mL of water, with hydrochloric acid (3.4) and acidified to neutral excess 5mL. Moved to 1000mL Volumetric flask, dilute with water to volume, and mix. This solution containing 100µg of aluminum per milliliter.

3.15

aluminum standard solution. Pipette 10.00mL aluminum standard solution (3.14), placed in 500mL volumetric flask, was added 2mL of hydrochloric acid (3.4), Dilute with water to volume, and mix. This solution containing 2µg of aluminum per milliliter.

4 Instrument

Spectrophotometer.