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YS

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

YS/T 574.2-2009

Replacing YS/T 574.2-2006

**Methods for chemical analysis of zirconium powder for
electro-vacuum uses. The sulfosalicylic acid
spectrophotometric method for determination of iron**

电真空用锆粉化学分析方法磺基水杨酸分光光度法测定铁量

(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 2.

The partial replacement of YS/T 574.2 "spectrophotometric determination of the amount of iron electric vacuum Chemical analysis of zirconium powder sulfosalicylic acid" (formerly

GB/T 3256.2-1982).

This portion of YS/T 574.2-2006 compared to the main changes are as follows.

--- Measurement range from 0.02 to 0.50% to 0.02% changed to 0.60%;

--- 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 provides electrical measuring method vacuum zirconium powder iron content.

This section applies to electric vacuum measuring zirconium powder iron content.

Measurement range (mass fraction). 0.02% to 0.60%.

2 Principle of the method

Samples with sulfuric acid - ammonium sulfate decomposition of ammonia at pH8 ~ pH11 medium, iron and sulfosalicylic acid to form a yellow complex in spectroscopic Photometer measured at a wavelength of 425nm absorbance.

Zirconium matrix without interference. Test solution containing titanium, aluminum, calcium, magnesium each 500μg, copper, nickel and manganese 20μg each 100μg not interfere with the determination. manganese Hydroxylamine hydrochloride can be added to eliminate the interference greater than 20μg time.

3 Reagents

Unless otherwise specified, reagents were analytical reagents used in the analysis, of water, deionized water. Reagent solution is not described an aqueous solution.

3.1

sulfate (rho1.84g/mL).

3.2

ammonium sulfate, pure class distinctions.

Nitrate 3.3 (rho1.42g/mL).

3.4

nitric acid (1 + 1).

3.5

HCl (1 + 1).

Ammonia 3.6 (1 + 1).

3.7

sulfosalicylic acid solution (250g/L).

3.8

hydroxylamine hydrochloride solution (100g/L).

3.9

iron standard solution.

3.9.1

Weigh 0.5000g pure iron into 200mL beaker, add 20mL of nitric acid (3.4), cover sheet pan, and dissolved by heating to cook the removal of nitrogen oxides boiling, remove the cooled and transferred to 500mL volumetric flask, dilute with water to volume, and mix. This solution containing 1mL 1mg iron.

3.9.2

Pipette 10.00mL iron standard solution (3.9.1), placed in 100mL flask was added 2.00mL of hydrochloric acid (3.5), dilute with water Diluted to volume, and mix. This solution 1mL containing 0.1mg iron.

4 Instrument

Spectrophotometer.

5.1 Sample

Table 1 sample was weighed, accurate to 0.0001g.