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YS

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

YS/T 568.5-2008

Replacing YS/T 568.5-2006

**Chemical analysis methods for zirconium oxide and hafnium
oxide. Determination of sodium content. Flame atomic
absorption spectrometric method**

氧化锆、氧化铪化学分析方法 钠含量的测定 火焰原子吸收光谱法

(English Translation)

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Foreword

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

--- Part 1. Determination of zirconium and hafnium oxide combined amount 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- cetylpyridinium 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 atomic Emission spectrometry;

--- Part 9. hafnium oxide of aluminum, calcium, magnesium, manganese, sodium, nickel, iron, titanium, zinc, molybdenum, vanadium, zirconium content - Inductively coupled plasma atomic 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 5.

The partial replacement of YS/T 568.5-2006 "zirconium oxide, hafnium Determination of sodium content" (formerly GB/T 2590.10-1981).

This portion of YS/T 568.5-2006 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 specifies the determination of zirconia and hafnia in sodium content.

This section applies to the determination of zirconium oxide and hafnium oxide and sodium content. Measuring range. 0.01% to 1%.

2 Method summary

Sample with sulfuric acid, ammonium sulfate dissolved, may increase deionization agent at the wavelength of 589.0nm, air - acetylene flame atomic absorption spectrometry measurement set. Sample Sodium content less than 0.1% of the standard addition method, the sodium content greater than 0.1% of the sample using the standard curve method.

3 Reagents

3.1

sulfate ($\rho=1.84\text{g/mL}$), pure class distinctions.

3.2

ammonium sulfate, pure class distinctions.

3.3

Sodium standard stock solution. Weigh 2.5421g sodium chloride (already burned at 400 °C ~ 450 °C to bursting no sound), was dissolved in water and transferred to 1000mL volumetric flask, dilute to the mark, shake. 1mL solution containing 1mg sodium.

3.4

Sodium standard solution. Pipette 25.00mL solution (3.3), placed in 250mL flask, diluted with water to the mark. This solution 1mL containing 100 μg sodium.

3.5

Sodium standard solution. Pipette 25.00mL solution (3.4), placed in 250mL flask, diluted with water to the mark. This solution 1mL containing 10 μ g sodium.

4 Instruments and equipment

Atomic absorption spectrometer, with a sodium hollow cathode lamp.

The following metrics are in optimum working conditions down to earth can be achieved can be used.

--- Characteristic concentration. a solution in the measurement matrix consistent solution. Characteristics of the sodium concentration should not exceed 0.01 μ g/mL.

--- Precision. measuring the absorbance of 10 with the highest concentration of standard solution, the standard deviation should not exceed the average absorbance values 1.0%. Measuring the absorbance of 10 with the lowest concentration of the standard solution (not "zero" concentration of the standard), the standard deviation should not be 0.5% more than the highest concentration of the standard average absorbance.

--- Linear calibration curves. the curve is divided into five sections according to concentration, the highest section of the absorbance difference between the lowest section of the difference in absorbance the ratio shall be not less than 0.7.

5.1 Sample

Table 1 sample was weighed, accurate to 0.0001g.

Table 1

The mass fraction of sodium /% Sample volume/g 0.01 0.05 1.0 > 0.1 0.05 ~ 0.50 > 0.1 to 1 0.10