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YS

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

YS/T 514.8-2009

Replacing YS/T 514.3-2006

**Methods for chemical analysis of high-titanium slag and rutile.
Part 8: Determination of phosphorus content. Antimony
molybdenum blue spectrophotometry**

高钛渣、金红石化学分析方法 第8部分：磷量的测定 锑钼蓝分光光度法(有黑印，
不清晰)

(English Translation)

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Table of Contents

- Foreword
- 1 Scope
- 2 Method summary
- 3 Reagents
- 4 Instrument
- 5 Sample

Foreword

YS/T 514 "high titanium slag and rutile chemical analysis method" is divided into 10 parts.

- Part 1. Determination of titanium dioxide content of ammonium ferric sulfate titration;
- Part 2. Determination of total iron content of dichromate method;
- Part 3. Determination of sulfur content of high frequency infrared absorption method;
- Part 4. Determination of the amount of silica weighing method, the molybdenum blue spectrophotometric method;
- Part 5. aluminum oxide content - EDTA titration;
- Part 6. Determination of a manganese oxide content by flame atomic absorption spectrometry;
- Part 7. calcium oxide, magnesium oxide content - Flame atomic absorption spectrometry;
- Part 8. Determination of the amount of phosphorus antimony molybdenum blue spectrophotometric method;
- Part 9. calcium oxide, magnesium oxide, manganese oxide, phosphorus, chromium oxide and vanadium pentoxide content - Inductively coupled plasma Daughters emission spectrometry;
- Part 10. Determination of the amount of carbon frequency infrared absorption method.

This section YS/T 514 Part 8.

The partial replacement of YS/T 514.3-2006 "high titanium slag and rutile chemical analysis extraction molybdenum blue spectrophotometric determination of phosphorus content." this portion of YS/T 514.3-2006 compared to the main changes are as follows.

- By the method of extraction - molybdenum blue photometric antimony molybdenum blue spectrophotometry changed;
- 30mL to 30mL of nickel silver crucible;
- Redefine sample weight, sample weight 0.4000g;
- Sodium hydroxide was changed to 4g;
- By the wavelength of 680nm to 710nm;
- By the method of matrix matching method to the standard curve;
- Increasing the repeatability limit and quality assurance and control provisions.

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

This section is responsible for drafting unit. Zunyi Titanium Co., Ltd., China Nonferrous Metals Industry Standards and Metrology Institute for Quality.

Participated in the drafting of this section. Jinchuan Group Co., Ltd. Fushun Titanium.

1 Scope

YS/T 514 This part provides high titanium slag and rutile determination of phosphorus content.

This section applies to high titanium slag and rutile determination of phosphorus content. Measurement range. 0.001% to 0.100%.

This section applies to silicon, arsenic is not more than 3mg determination of phosphorus in the test solution.

2 Method summary

Sample with sodium hydroxide - fusion with sodium peroxide, and separating and removing heat from the flooding of titanium, iron and other impurities. In 0.6mol/L sulfuric acid medium Quality, the phosphorus and antimony, molybdenum generated blue ternary association complex, the absorbance was measured in a spectrophotometer at a wavelength of 710nm.

3 Reagents

Unless otherwise indicated in the analysis using only recognized as analytical grade reagents and distilled or deionized water or equivalent purity.

3.1

sodium hydroxide.

3.2

sodium peroxide.

3.3

ethanol.

3.4

sulfuric acid (1 + 5), formulated by the excellent level of pure sulfuric acid.

3.5

Phenolphthalein (1g/L), formulated with ethanol.

3.6

sulfate - ammonium molybdate solution. Weigh 18.00g of ammonium molybdate in 100mL of water was heated to dissolve completely cooled diluted to 500mL, and then Sulfuric acid (rho about 1.84g/mL) 100mL, and mix.

3.7

antimony potassium tartrate, - tartaric acid solution. Weigh 0.3g antimony potassium tartrate, 20g tartaric acid, add 20mL of ethanol (3.3), add water 100mL Completely dissolved, diluted to 600mL, shake.

3.8

ascorbic acid solution. 20g/L, the time is now equipped with.

3.9

mixed color solution. take sulfate - ammonium molybdate solution (3.6), antimony potassium tartrate, - tartaric acid solution (3.7), ascorbic acid solution (3.8) Press the mixing ratio 1.1.1 shake, is formulated with time.

3.10

P standard stock solution. Weigh 4.3937g reference reagent potassium dihydrogen phosphate (previously at 105 °C ~ 110 °C drying 2h, and placed in dry Dryer cooled to room temperature), placed in 200mL beaker, add water, dissolved and transferred to 1000mL volumetric flask, dilute to the mark with water, mix uniform. This solution 1mL containing 1.0mg phosphorus.

3.11

Phosphorus standard solution. Pipette 10.00mL phosphorus standard stock solution (3.10), into 1000mL volumetric flask, dilute to the mark with water Degree, and mix. This solution 1mL containing 0.01mg phosphorus.

4 Instrument

Visible spectrophotometer

5 Sample

5.1

Sample size should be less than 90 μ m.

5.2

Sample required in advance at 105 °C ~ 110 °C drying 2h, placed in a desiccator to cool to room temperature.