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

YS/T 360.5-2011

Replacing YS/T 360-1994

**Methods of chemical analysis for ilmenite concentrate. Part 5:
Determination of silicon dioxide content. Molybdenum blue
spectrophotometry**

钛铁矿精矿化学分析方法 第5部分：二氧化硅量的测定 硅钼蓝分光光度法
(English Translation)

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Foreword

YS/T 360 "ilmenite concentrate chemical analysis method" is divided into six parts.

- Part 1. Determination of titanium dioxide - Ammonium sulfate titration;
- Part 2. Determination of total iron content - Potassium dichromate titration;
- Part 3. Determination of the amount of ferrous oxide - Potassium dichromate titration;
- Part 4. Determination of the amount of alumina - EDTA titration;
- Part 5. Determination of silicon dioxide - Mo - Mo - blue spectrophotometric method;

Part 6. Determination of calcium oxide, magnesium oxide, and phosphorus content - Plasma emission spectrometric method.

This section is part 5 of YS/T 360.

This standard is owned by the National Committee for the Standardization of Nonferrous Metals (SAC/TC243).

The drafting unit of this standard. Zunyi Titanium Industry Co., Ltd., Jinchuan Group Co., Ltd., Yunnan Xinli Nonferrous Metals Co., Ltd., Fushun Titanium Industry Co., Ltd., China Nonferrous Metals Industry Standard Measurement Quality Institute.

1 Scope

This part of YS/T 360 specifies the method for the determination of the amount of silica in ilmenite concentrates.

This part is applicable to the determination of the amount of silica in ilmenite concentrate, the determination range is 0.50% ~ 5.00%.

2 Method summary

The sample was melted with sodium hydroxide-sodium peroxide, and the test solution was slightly acidic by acidification. Silicon and molybdate were used to form silicon molybdenum yellow heteropoly acid.

1.5 mol/L sulfuric acid medium, with a reducing agent will be reduced to silicon molybdenum, spectrophotometer measured at the wavelength of 810nm Absorbance and calculate the amount of silica in the sample.

3 Reagent

3.1

Sodium hydroxide.

3.2

Sodium peroxide.

3.3

Sulfuric acid (1 1).

3.4

Hydrochloric acid (1 1).

3.5

Ammonium molybdate solution (200g/L). Weigh 20g ammonium molybdate dissolved in a small amount of hot water, diluted with water to 100mL plastic bottle storage.

3.6

Reducing agent solution. 0.1 g of 1-amino-2-naphthol-4-sulfonate (1.2.4 acid) and 1 g of anhydrous sodium sulphite were dissolved in 100 mL of water (The day of preparation).

3.7

Silica Standard Storage Solution. Weigh 0.2000 g of which was preheated at 1000 ° C for 1 h and placed in a desiccator to cool to room temperature.

Silica ($\geq 99.99\%$) and 5 g of anhydrous sodium carbonate were placed in a platinum crucible and mixed in a high temperature furnace at 950 ° C for 15 minutes and cooled.

Into a 500mL beaker, add 300mL of hot water, leach the frit, heat dissolved, cooled, transferred into a 1000mL volumetric flask, diluted with water to the scale, mix. Immediately move into a dry polyethylene plastic bottle. This solution contains 1 mL of 0.2 mg of silica.

3.8

Silica standard solution. Remove 10.00mL of silica standard storage solution (11.7), placed in 100mL volumetric flask, with water Dilute to the mark and mix well. Immediately move into a dry polyethylene plastic bottle. This solution contains 1 mL of 0.02 mg of silica.

4 Sample

4.1

The sample size should not be greater than 90 μ m.

4.2

samples in advance at 105 °C ~ 110 °C baking 2h, placed in a dryer, cooled to room temperature.

5.1 Sample

Weigh 0.200g sample, accurate to 0.0001g.