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

YS/T 1149.6-2016

**Methods for chemical analysis of zinc concentrate roasting--Part 6:
Determination of acid-soluble iron content--Flame atomic absorption
spectrometry and Na₂EDTA titration method**

锌精矿焙砂化学分析方法 第6部分：酸溶铁量的测定 火焰原子吸收光谱法和Na₂EDTA滴定法

(English Translation)

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Foreword

YS/T 1149 "Zinc concentrate calcite chemical analysis method" is divided into the following eight parts.

- Part 1. Determination of zinc content - Na₂EDTA titration;
- Part 2. Determination of acid and zinc content - Na₂EDTA titration;
- Part 3. Determination of sulfur content - Combustion neutralization titration;
- Part 4. Determination of soluble sulfur - Barium sulfate gravimetric method;
- Part 5. Determination of iron content - Na₂EDTA titration;
- Part 6. Determination of acid soluble iron - Flame atomic absorption spectrometry and Na₂EDTA titration;
- Part 7. Determination of silica content - Molybdenum blue spectrophotometric method;
- Part 8. Determination of acid - soluble silica - Molybdenum blue spectrophotometric method.

This section is part 6 of YS/T 1149, this part is drafted in accordance with the rules given in GB/T 1.1-2009.

This part of the National Nonferrous Metals Standardization Technical Committee (SAC/TC243) proposed and centralized.

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Chemical Analysis of Zinc Concentrate Part 6. determination of acid soluble iron Flame Atomic Absorption Spectrometry and Na₂EDTA Titration

1 Scope

This part of YS/T 1149 specifies the method for the determination of the amount of acid dissolved iron in the concentrate of zinc concentrate.

This part is applicable to the determination of acid iron in zinc concentrate. Method 1 was measured in the range of 0.50% to 3.00%; Method 2 was measured with $\geq 3.00\%$ to 6.00%.

2.1 Method Summary

The samples were diluted with sulfuric acid at 85 °C ~ 90 °C for 20min, the filtrate in dilute hydrochloric acid medium, the use of air acetylene flame, atomic absorption Spectrometer wavelength measured at 248.3nm iron absorbance, calculate the amount of acid dissolved iron.

2.2 Reagents

Unless otherwise stated, the reagents used in this section are analytical reagents and distilled or deionized water in accordance with national or industry standards.

Or a fairly pure water.

2.2.1

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

2.2.2 Sulfuric acid (rho1.84g/mL)

2.2.3 hydrochloric acid (1 1).

2.2.4 Sulfuric acid (9 191).

2.2.5 iron standard solution. weighed 0.1430g was dried at $105\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ 1.5h and cooled to room temperature of ferric oxide ($w\text{Fe}_2\text{O}_3 \geq 99.99\%$) in a 300mL beaker, add 20mL hydrochloric acid (2.2.3), cover the surface of the dish, heated in the water bath dissolved completely. Removed, cold but, into the 1000mL volumetric flask, diluted with water to the mark, mix. This solution 1mL iron containing 100 μg .

2.3 Instruments

2.3.1

Atomic Absorption Spectrometer, with iron hollow cathode lamp.

In the best working conditions of the instrument, any of the following indicators can be used to achieve the atomic absorption spectrometer.

Sensitivity. The concentration of iron should be no more than 0.05 $\mu\text{g/mL}$ in a solution consistent with the measurement sample solution matrix.

--- precision. with the highest concentration of standard solution measured 10 times the absorbance, the standard deviation should not exceed the maximum concentration of standard solution level Absorbance of 0.5%.

--- work curve linear. the working curve by concentration equal to 5, the highest section of the difference between the absorbance difference and the lowest of the difference in absorbance Ratio, should not be less than 0.8.

2.3.2

constant temperature water bath.

2.4 Sample

2.4.1

Specimens shall pass through 0.100mm sieve.