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

YS/T 1149.3-2016

**Methods for chemical analysis of zinc concentrate
roasting--Part 3: Determination of sulfur content--The
combustion neutralization of titrimetric method**

锌精矿焙砂化学分析方法 第3部分：硫量的测定 燃烧中和滴定法

(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 3 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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1 Scope

This part of YS/T 1149 specifies the method for the determination of sulfur content in the zinc concentrate.

This part is applicable to the determination of the sulfur content of zinc concentrate in fly ash content 2 method summary the sample is combusted in an air stream of 1250 ° C to 1300 ° C to convert sulfur to sulfur dioxide, which is oxidized to hydrogen with hydrogen peroxide Acid, methyl red methyl blue as a mixture of indicators, titration with sodium hydroxide titration solution to the solution from purple to bright green end.

3 Reagent

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.

3.1

linear copper oxide ($w_{\text{CuO}} \geq 99.95\%$).

3.2

lead sulfate lead reagent.

3.3

anhydrous ethanol.

3.4

Hydrogen peroxide (30%).

3.5

Hydrogen Peroxide Absorbent Solution. 1 L solution containing 50 mL of hydrogen peroxide (3.4) and 2 mL of methyl red sub-methyl blue mixed indicator (3.6).

3.6

methyl red grain blue mixed indicator. methyl red ethanol solution (1.2g/L) and methylene blue solution (1.6g/L), before use, etc.

Volume mixing.

3.7

sodium hydroxide standard titration solution ($\sim 0.05\text{mol/L}$).

3.7.1

Preparation. Weigh 3.0 g of sodium hydroxide in a 500 mL beaker, add 100 mL of boiled

and cooled deionized water to dissolve Solution, into the 5L plastic bucket, with boiling and cooling the deionized water diluted to 5L, mix.

3.7.2

Calibration. accurately weighed 0.1000g lead sulfate lead reagent (3.2) in the porcelain boat, covering 0.3g ~ 0.4g linear copper oxide (3.1), according to analysis steps 6.4.3, 6.4.4 at the same time calibration, record the consumption of sodium hydroxide volume.

The concentration of sodium hydroxide standard titration solution according to formula (1).

$$c = \frac{m_1 \times 2 \times 10}{(V_1 - V_0) \times 303.26}$$

$$(V_1 - V_0) \times 303.26$$

Where.

c - the concentration of sodium hydroxide standard titration solution in moles per liter (mol/L);

m₁ --- the quality of lead sulfate, in grams (g);

V₁ --- volume of sodium hydroxide standard titration solution consumed in calibration, in milliliters (mL);