

ICS 77.120.60
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**NONFERROUS METALS INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

YS/T 461.2-2013

Replacing YS/T 461.2-2003

**Methods for chemical analysis of lead and zinc bulk
concentrates. Part 2: The determination of iron content.
Na₂EDTA titrimetric method**

混合铅锌精矿化学分析方法 第2部分：铁量的测定Na₂EDTA滴定法
(English Translation)

Issued on: January 1, 1970

Implemented on: January 1, 1970

Issued by: Ministry of Industry and Information Technology

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Foreword

YS/T 461 "Lead and Zinc concentrates - Methods" is divided into 11 parts.

- Part 1. Determination of the amount of lead and zinc content Na₂EDTA precipitation titration;
- Part 2. Determination of iron content Na₂EDTA titration;
- Part 3. Determination of sulfur content of combustion - neutralization titration method;
- Part 4. Determination of arsenic content of iodine titration;
- Part 5. Determination of silicon dioxide content - Molybdenum blue spectrophotometric method;
- Part 6. Determination of the amount of mercury atomic fluorescence spectrometry;
- Part 7. Determination of cadmium content by flame atomic absorption spectrometry;
- Part 8. Determination of copper content - Flame atomic absorption spectrometry;
- Part 9. Determination of the amount of silver by flame atomic absorption spectrometry;
- Part 10. the amount of gold and silver contents - fire assay;
- Part 11. arsenic, bismuth, cadmium, cobalt, copper, nickel, antimony content - Inductively Coupled Plasma - Atomic Emission Spectrometry.

This section YS/T Part 2 461.

This section drafted in accordance with GB/T 1.1-2009 given rules.

The partial replacement of YS/T 461.2-2003 "Lead and Zinc concentrates - Determination of iron content Na₂EDTA titration" Compared with YS/T 461.2-2003, the main changes are as follows.

- On the "analysis step" clause in the sample dissolution method was modified;
- Added "reproducibility" clause, delete the words "to allow poor" clause;

--- Added "the test report" requirement.

The non-ferrous metal part by the National Standardization Technical Committee (SAC/TC243) centralized.

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1 Scope

This section YS/T 461 specifies the method for determination of Lead and Zinc concentrate iron content.

This section applies to the determination of Lead and Zinc concentrate iron content. Measuring range. 2.00% to 20.00%.

This section does not apply to bismuth content of more than 0.3% Lead and Zinc concentrate.

2 Method summary

Sample was dissolved with hydrochloric acid, nitric acid, sulfuric acid, nitric acid and evaporated to dryness to remove low. Dissolved salts with hydrochloric acid, add ammonia iron precipitated as ferric hydroxide, Filtration, separation coexisting elements. Dissolve the precipitate with dilute hydrochloric acid and acidity regulator in micro-boiling conditions to sulfosalicylic acid as an indicator to Na₂EDTA standard titration solution titration to the solution from purple to bright yellow as the end point. According to standard titration solution consumed Na₂EDTA the calculation of the volume of the iron content.

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

ammonium chloride.

3.2

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

3.3

nitric acid ($\rho = 1.42\text{g/mL}$).

Aqueous ammonia 3.4 ($\rho = 0.90\text{g/mL}$).

3.5

sulfate ($\rho = 1.84\text{g/mL}$).

3.6

hydrochloride (11).

3.7

hydrochloride (110).

3.8

Aqueous ammonia (11).

3.9

ammonium fluoride solution (250g/L).

3.10

ammonium chloride bath. Weigh 25g ammonium chloride (3.1) were dissolved in 500mL of water, add 20mL ammonia (3.4), and mix.

3.11

Sulfosalicyl indicator (100g/L).

3.12

disodium edetate (Na_2EDTA) standard titration solution.

3.12.1

preparation. Weigh 10g Na_2EDTA ($\text{C}_{10}\text{H}_{14}\text{N}_2\text{O}_8\text{Na}_2 \cdot 2\text{H}_2\text{O}$) in 400mL beaker was added 200mL of water, heating solution. Solution is completely cooled to room temperature and transferred to 1000mL volumetric flask, dilute with water to volume, and mix. Calibration after placing 3d.

3.12.2

Calibration. Weigh 0.060g (accurate to 0.0001g) pre-drying at $105^\circ\text{C} \pm 5^\circ\text{C}$ oven 1h, cooled and placed in a desiccator to room temperature and the iron oxide reference material in 300mL beaker, wetted with a small amount of water, plus 10mL of hydrochloric acid (3.2), purged with a small amount of water table. Side dish and cup wall, low temperature heating steam until nearly dry. Add 2mL of hydrochloric acid (3.6) dissolved salts, water was added to 120mL, with aqueous ammonia (3.4) and the hydrogen to iron oxide precipitate has just appeared, plus 8mL hydrochloric acid (3.7), heated to near

boiling, remove it. Add 1mL Sulfosalicyl indicator (3.11), with Na₂EDTA standard titration solution titration to the solution from purple to bright yellow is the end. Along with the calibration blank test.