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

YS/T 820.20-2012

**Methods for chemical analysis of laterite nickel ores. Part 20:
Determination of aluminum content. EDTA titration**

红土镍矿化学分析方法 第20部分铝量的测定 EDTA滴定法

(English Translation)

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Foreword

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

YS/T 820-2012 "Methods for chemical analysis of nickel laterite ore" is divided into 26 parts.

- Part 1. Determination of nickel content by flame atomic absorption spectrometry;
- Part 2. Determination of the amount of nickel dimethylglyoxime spectrophotometry;
- Part 3. Determination of total iron content of dichromate method;
- Part 4. Determination of phosphorus content - Molybdenum blue spectrophotometric method;
- Part 5. Determination of cobalt content by flame atomic absorption spectrometry;
- Part 6. Determination of copper content - Flame atomic absorption spectrometry;
- Part 7. Determination of calcium and magnesium content by flame atomic absorption spectrometry;
- Part 8. Determination of the amount of silica silicon potassium fluoride titration;
- Part 9. scandium, cadmium determination by inductively coupled plasma - mass spectrometry;
- Part 10. calcium, cobalt, copper, magnesium, manganese, nickel, zinc and phosphorus content - Inductively Coupled Plasma - Atomic Emission Spectrometry;
- Part 11. Determination of the amount of fluorine and chlorine ion chromatography;
- Part 12. Determination of manganese content by flame atomic absorption spectrometry;
- Part 13. Determination of lead content by flame atomic absorption spectrometry;
- Part 14. Determination of zinc content - Flame atomic absorption spectrometry;

- Part 15. Determination of cadmium content by flame atomic absorption spectrometry;
- Part 16. Determination of the amount of carbon and sulfur by high frequency combustion infrared absorption spectroscopy;
- Part 17. arsenic, antimony, bismuth contents hydride generation - atomic fluorescence spectrometry;
- Part 18. Determination of mercury content - Cold atomic absorption spectrometry;
- Part 19. Determination of energy aluminum, chromium, iron, magnesium, manganese, nickel and silicon content dispersive X-ray fluorescence spectrometry;
- Part 20. Determination of aluminum content EDTA titration;
- Part 21. Determination of chromium content ammonium ferrous sulfate titration;
- Part 22. Determination of magnesium content EDTA titration;
- Part 23. cobalt, iron, nickel, phosphorus, aluminum oxide, calcium oxide, chromium oxide, magnesium oxide, manganese oxide, silicon dioxide and titanium dioxide volume Wavelength dispersive X-ray fluorescence spectrometry;
- Part 24. Determination of hygroscopic water weight method;
- Part 25. Determination of combined water content - Gravimetric method;
- Part 26. Determination of loss on ignition - Gravimetric method.

This section YS/T 820-2012 Part 20.

This method is a method of arbitration.

This standard by the national non-ferrous metals Standardization Technical Committee (SAC/TC243) centralized.

This standard by the Beijing General Research Institute of Mining and Metallurgy, People's Republic of China Bayuquan Exit Inspection and Quarantine, Jinchuan Group Ltd, Drafted.

This section is drafted. Jinchuan Group Limited.

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1 Scope

This section YS/T 820 requirements for the determination of nickel laterite ore of aluminum content.

This section applies to the determination of nickel laterite ore of aluminum content.
Measuring range. 0.30% - 7.00%.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

YS/T 820.24-2012 Methods for chemical analysis of nickel laterite Part 24. hygroscopic water - Gravimetric method

3 Method summary

Sample with sodium hydroxide melt. PH5.5 ~ 6.0 in the acid medium, the addition of excess EDTA solution was left to aluminum and a variety of Ion complexation, xylenol orange as indicator, zinc standard solution back drop excess EDTA, sodium fluoride replacement EDTA-Al complexes, Then the zinc standard solution titration released EDTA, titration to the solution from yellow to red.

4 Reagents

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

4.1

sodium hydroxide.

4.2

sodium fluoride.

4.3

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

4.4

hydrochloride (11).

4.5

Aqueous ammonia (11).

4.6

xylenol orange indicator solution (4g/L).

4.7

phenolphthalein indicator solution (1g/L). Weigh 0.1g of phenolphthalein was dissolved in 100mL of ethanol.

4.8

acetic acid - sodium acetate buffer solution (pH5.5 ~ 6.0). Weigh 200g of sodium acetate crystals were dissolved in 500mL of water, was added 10mL of ice Acetic acid, transferred to 1000mL volumetric flask, dilute with water to volume, and mix.

4.9

EDTA solution (15g/L).

4.10

Zinc Standard Solution ($c_{Zn^{2+}} = 0.006143\text{mol/L}$). Weigh 1.0000g at $800\text{ }^{\circ}\text{C} \pm 50\text{ }^{\circ}\text{C}$ high temperature furnace burning to Constant weight basis zinc oxide reagent, wetted with a small amount of water, plus 20mL of hydrochloric acid (4.3) was dissolved and concentrated to a small volume, transferred to 2000mL capacity Dilution bottle with water to volume, and mix.