

ICS 73.060
CCS D 04

YS

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

YS/T 820.11-2012

**Methods for chemical analysis of laterite nickel ores. Part 11:
Determination of fluorine and chlorine contents. Ion
chromatography**

红土镍矿化学分析方法 第11部分：氟和氯量的测定 离子色谱法
(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

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. Determination of cadmium content of scandium and 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 and 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 by 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 10.

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.

1 Scope

This section YS/T 820 specifies the method for determination of nickel laterite ore in the amount of fluorine and chlorine.

This section applies to the determination of fluorine and chlorine content of nickel laterite ore. Measurement range. 0.010% - 0.40% fluorine, chlorine, 0.010% to 0.60%.

2 Method summary

Sample decomposition by sulfuric acid, wherein the fluorine, chlorine with water vapor to escape and sample separation, the absorption liquid absorption was determined by ion

chromatography. With Retention time qualitative and quantitative methods to work curve.

3 Reagents

Unless otherwise indicated in the analysis using only confirmed for the gifted class pure reagents and 18.2Mohm · cm resistivity greater than pure water.

3.1

sulfate (rho1.84g/mL).

3.2

sulfate (21).

3.3

Sodium hydroxide solution (0.2mol/L). Weigh 8.0g of sodium hydroxide dissolved in 1000mL of water.

3.4

potassium hydroxide solution (0.02mol/L). Weigh 1.12g of potassium hydroxide dissolved in 1000mL of water, can also be used to automatically send eluent Generator OH- type preparation.

3.5

fluoro standard stock solution. Weigh accurately 2.2110g dried 2h of 105 °C ~ 110 °C reference fluoride to water to dissolve, moved 1000mL volumetric flask, dilute with water to volume, and mix. Into dry plastic bottles saved. This solution 1mL containing 1000μg fluorine.

3.6

Storage chlorine standard solution. Accurately weigh 1.6485g burning after 500 °C ~ 600 °C to constant weight basis of sodium chloride dissolved in water and transferred to 1000mL volumetric flask, dilute with water to volume, and mix. This solution 1mL containing 1000μg chlorine.

3.7

fluorine and chlorine mixed standard solution. accurate Pipette respectively fluorine and chlorine standard stock solution (3.5 and 3.6) each 5.00mL to 50mL capacity Dilution bottle with water to volume, and mix. This solution is a 1mL containing fluorine and chlorine each 100μg.

4 Instrument

4.1

ion chromatography, electrical conductivity detector.

4.2

Steam distillation apparatus (see Appendix A), the former is required to use all glassware successively with NaOH solution (2mol/L) and water respectively dip Bubble 4h, then washed with water 3-5 times, dried for use.

4.3

nylon membrane, pore size 0.22 μ m.

4.4

syringe volume 2.5mL.

5 Sample

The sample size should be less than 160 μ m, dried at 100 °C ~ 110 °C oven 2h placed after the dryer to cool to room temperature before use.