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

YS/T 820.19-2012

**Methods for chemical analysis of laterite nickel ores. Part 19: Determination of
aluminum, chromium, iron, magnesium, manganese, nickel and silicon contents.
Energy-dispersive X-ray fluorescence spectrometry**

红土镍矿化学分析方法 第19部分：铝、铬、铁、镁、锰、镍和硅量的测定能量色
散X射线荧光光谱法

(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 19.

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

YS/T 820 This part sets out with an energy dispersive X-ray fluorescence spectrometry laterite nickel ore in aluminum, chromium, iron, magnesium, manganese, nickel and the method of silicon content.

This section applies to the determination of nickel laterite ore in aluminum, chromium, iron, magnesium, manganese, nickel and silicon content, measuring range in Table 1.

NOTE: laterite aluminum, chromium, iron, magnesium, manganese, nickel and silicon content of nickel may also be employed a method in Appendix A were measured.

Table 1 elements and measurement range

Element measurement range /% Al 0.20 ~ 5.00 Cr 0.10 ~ 2.50 Fe 5.00 ~ 55.00 Mg 0.50 ~ 15.00 Mn 0.10 ~ 1.00 Ni 0.10 ~ 3.00 Si 2.00 ~ 20.00

2 Method summary

The powder sample was prepared as a tablet or a glass fuse, on the X-ray beam emitted by the source, using the measurement sample analysis device is activated when the fluorescent X-ray intensity produced by fat, calculated by a calibration curve of the analyte content.

3 Interference

3.1

When nickel laterite sample elements emit X-rays, generated when the spectral interference, the detector can not correctly detect the analyte emission X-rays resulting spectra superimposed, resulting spectral interferences. The device according to the manufacturer's operating instructions to calibrate the instrument, thereby eliminating interference.

Change 3.2 allows content elements in the sample matrix changes directly affect the X-ray absorption, thereby changing the measurements of each element fruit. This interference usually occurs in X-ray fluorescence analysis, but not spectral interference.

3.3

Some instruments equipped with noise reduction software, can automatically check and reduce interference.

4 Instruments and equipment

4.1

energy dispersive X-ray fluorescence spectrum analyzer. no energy can be used for this test method and meet the following criteria dispersive X-ray fluorescence