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

YS/T 341.4-2016

**Methods for chemical analysis of nickel concentrates--Part 4:
Determination of zinc content--Flame atomic absorption
spectrometry**

镍精矿化学分析方法 第4部分：锌量的测定 火焰原子吸收光谱法

(English Translation)

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Foreword

YS/T 341 "Nickel concentrate chemical analysis method" is divided into four parts.

- Part 1. Determination of nickel content - Butadiene oxime precipitation separation - EDTA titration;
- Part 2. Determination of copper content - Flame atomic absorption spectrometric method;
- Part 3. Determination of magnesium oxide - EDTA titration;

Part 4. Determination of zinc content - Flame atomic absorption spectrometric method.

This part is part 4 of YS/T 341.

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.

The main drafting unit. Jinchuan Group Co., Ltd.

This part participates in the drafting unit. China Nonferrous Guilin Mineral Geology Research Institute Co., Ltd., Kunming Metallurgical Research Institute, Beijing Mining and Metallurgy Research Yuan, Zijin Mining Group Co., Ltd., Xiamen Zijin Mining and Metallurgy Technology Co., Ltd., Guangzhou Nonferrous Metals Research Institute.

This part of the main drafters. Yu Shengjie, Ren Lihua, Guo Zelin, Li Xikai, Wen Zhanjie, Zhou Lingbo, Qiu Li, Liu Yingbo, Luo Shun, Yan Yuxin, Li Ying, Fang Di, Yang Zhifeng, Zhang Yuan, Wen Xiujuan, Mai Libi, Tang Weixue.

Chemical analysis of nickel concentrates Part 4. determination of zinc content Flame atomic absorption spectrometry

1 Scope

This part of YS/T 341 specifies the method for the determination of zinc in nickel concentrates.

This part applies to the determination of zinc in nickel concentrates. The measurement range is 0.0050% to 1.00%.

2 Method summary

The samples were decomposed with hydrochloric acid, nitric acid, hydrofluoric acid and perchloric acid. In dilute hydrochloric acid medium, use an air-acetylene flame at the atomic absorption spectrometer wave Long 213.9nm, with deuterium lamp subtract the background of the way to measure its absorbance, according to the work curve method to calculate the amount of zinc.

3 Reagent

Unless otherwise stated, only the reagents identified as analytical reagents were used in the analysis, and the water used was laboratory secondary water or pure water equivalent.

3.1

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

3.2

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

3.3

hydrofluoric acid ($\rho=1.15\text{g/mL}$).

3.4

perchloric acid ($\rho=1.67\text{g/mL}$).

3.5

Hydrochloric acid (1:1).

3.6

zinc standard storage solution. Weigh 1.0000g metal zinc ($w_{\text{Zn}} \geq 99.95\%$) placed in 400mL beaker, add 20mL nitric acid (1:1), heated to completely dissolved, removed, washed with water dish and cup wall, heated boiled to expel nitrogen oxide. Remove, cool to room temperature, move in 1000mL volumetric flask, diluted with water to the mark, mix. 1mL of this solution contains 1000 μg of zinc.

3.7

zinc standard solution. remove 2.00mL zinc standard storage solution (3.6) in a 200mL volumetric flask, add 5mL hydrochloric acid (3.1) with water Dilute to the mark and mix well. 1 mL of this solution contains 10 g of zinc.

4 Instruments

Atomic absorption spectrometer (with deuterium lamp subtraction background function), with zinc hollow cathode lamp.

In the best working conditions of the instrument, who can achieve the following indicators can be used.

--- Sensitivity. In the same solution with the measured test solution, the characteristic concentration of zinc should not be greater than 0.01 μ g/mL.

Precision. the maximum concentration of the standard solution measured 10 times the absorbance, the standard deviation should not exceed 1.0% of the average absorbance;

The standard absorbance should be measured with a minimum concentration of standard solution (not a "zero" standard solution) with a standard deviation of no more than the highest concentration the average absorbance of the standard solution is 0.5%.

--- work curve linear. the working curve by concentration equal to 5, the highest section of the difference between the absorbance difference and the lowest of the difference in absorbance Ratio should not be less than 0.85.