

YS

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

YS/T 1658.5-2023

**Methods for chemical analysis of crude nickel cobalt hydroxide
- Part 5: Determination of moisture content - Gravimetric
method**

粗氢氧化镍钴化学分析方法 第5部分：水分含量的测定 重量法
(English Translation)

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Table of Contents

Foreword	
Introduction	
1 Scope	
2 Normative references	
3 Terms and definitions	
4 Principle	
5 Apparatus	
6 Samples	
7 Test procedures	
8 Test data processing	
9 Precision	
10 Test report	
Annex A (informative) Original data of the precision test	

Foreword

This document was issued on 29 December 2023 by the Ministry of Industry and Information Technology of the People's Republic of China, and has applied since 1 July 2024.

It is a YS/T standard: a recommended industry standard of China's non-ferrous metals industry.

Introduction

YS/T 1658, Methods for chemical analysis of crude nickel cobalt hydroxide, consists of seven parts: Part 1, nickel content by the dimethylglyoxime gravimetric method; Part 2, chromium, phosphorus and manganese contents by inductively coupled plasma atomic emission spectrometry; Part 3, fluorine content by the ion selective electrode method; Part 4, copper, aluminium, lithium, zinc, cadmium, lead and arsenic contents by inductively coupled plasma atomic emission spectrometry; Part 5, moisture content by the gravimetric method; Part 6, insoluble substance in hydrochloric acid by the gravimetric method; Part 7, manganese content by potentiometric titration.

1 Scope

This document describes the method for the determination of moisture content in crude nickel cobalt hydroxide.

This document is applicable to the determination of moisture content in crude nickel cobalt hydroxide. The determination range is 5.00%-70.00%.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

YS/T 1460-2021 Crude nickel cobalt hydroxide

3 Terms and definitions

No terms and definitions are defined in this document.

4 Principle

A certain amount of the test portion is placed in a drying oven and dried at $105^{\circ}\text{C} \pm 2^{\circ}\text{C}$ to constant mass. The loss in mass is determined, and the moisture content is calculated.

5 Apparatus

5.1

Electronic balance

With a measuring range not less than 2,000 g, and an accuracy of 0.1 g or better.

5.2

Electric thermostatic drying oven

Capable of controlling the temperature at $105^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

5.3

Sample tray

A clean stainless-steel or enamel tray with a smooth surface (common specifications: bottom area approximately 600 cm² and depth approximately 3 cm).

6 Samples

Samples shall be taken and prepared in accordance with the requirements of YS/T 1460-2021, 7.4.

7.1 Test portion

Weigh 1,000 g-1,500 g of the sample (6), accurate to 0.1 g.

7.2 Parallel tests

Carry out three tests in parallel.

7.3 Determination

7.3.1

Promptly spread the test portion (7.1) evenly in the sample tray previously dried to constant mass (m_1), and record the total mass of the sample tray and the test portion (m_2).

7.3.2

Place the sample tray containing the test portion in the electric thermostatic drying oven (5.2) at $105^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and dry the test portion for 48 h.

7.3.3

Remove the sample tray from the oven and, while the tray and the test portion are still hot, weigh them using the electronic balance (5.1). Return the sample tray containing the test portion to the electric thermostatic drying oven (5.2) maintained at $105^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and dry for a further 4 h. Remove the sample tray from the oven and, while the tray and the test portion are still hot, weigh them again using the electronic balance (5.1). Repeat the operations until constant mass is reached, and record the total mass of the sample tray and the test portion (m_3). Heat-insulating material, such as foam or cardboard, should be placed under the electronic balance.