



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 11064.1-2024

Replacing GB/T 11064.1-2013

**Methods for chemical analysis of lithium carbonate, lithium
hydroxide monohydrate and lithium chloride - Part 1:
Determination of lithium carbonate content - Titration**

**碳酸锂、单水氢氧化锂、氯化锂化学分析方法 第1部分：碳酸锂含量的测定
滴定法**

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Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020 “Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents”.

This document is Part 1 of GB/T 11064 “Methods for chemical analysis of lithium carbonate, lithium hydroxide monohydrate and lithium chloride”. GB/T 11064 has published the following parts:

- Part 1: Determination of lithium carbonate content - Titration;
 - Part 2: Determination of lithium hydroxide content - Acid-alkali titrimetric method;
 - Part 3: Determination of lithium chloride content - Potentiometric method;
 - Part 9: Determination of sulfate content - Barium sulfate turbidity method;
 - Part 10: Determination of chloride content - Silver chloride nephelometry method;
 - Part 11: Determination of acid-insolubles content - Gravimetric method;
 - Part 12: Determination of carbonate content - Acid-alkali titrimetric method;
 - Part 15: Determination of fluoride content - Ion selective method;
- manganese, cadmium, aluminum, iron and sulfate contents - Inductively coupled plasma atomic emission spectrometry.

This document replaces GB/T 11064.1-2013 “Methods for chemical analysis of lithium carbonate, lithium hydroxide monohydrate and lithium chloride - Part 1: Determination of lithium carbonate content - Acid-alkali titrimetric method”. Compared with GB/T 11064.1-2013, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) MODIFY the concentration of hydrochloric acid standard titration solution (see b) MODIFY the relevant content of “weighing mass” (see 4.5 of this document, 5.1 c) ADD the relevant content of “blank test” (see 4.5.3 of this document);
- d) MODIFY the relevant content of “test data processing” (see 4.6 of this document, Clause 6 of the 2013 edition);
- e) DELETE the relevant content of “allowable difference” (see 7.2 of the 2013 edition);
- f) ADD the reproducibility clause (see 4.7.2 of this document);
- g) ADD the potentiometric method (see Clause 5 of this document).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. The issuing authority of this document shall not be held responsible for identifying any or all such patent rights.

This document was proposed by China Nonferrous Metals Industry Association.

This document shall be under the jurisdiction of National Technical Committee on Nonferrous Metals of Standardization Administration of China (SAC/TC 243).

and Certification Co., Ltd., Yichun Lithium Battery Industry Research Institute (Jiangxi Lithium Battery Product Quality Supervision and Inspection Center), Jiangxi Jiuling Lithium Industry Co., Ltd., Urumqi Ya'ou Rare Metals Co., Ltd., Ningdu Ganfeng Lithium Co., Ltd., China Nonferrous Metals (Guilin) Geology and Mining Co., Ltd.

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This document was first issued in 1989 and revised for the first time in 2013. This is the second revision.

Introduction

Lithium carbonate, lithium hydroxide monohydrate and lithium chloride are widely used in 3C products, electric vehicles, electric bicycles, electric tools, base station energy storage power supplies and other industries. They are also the basic raw materials for products such as nuclear industry and special glass.

GB/T 11064 aims to establish standards for methods for chemical analysis of lithium carbonate, lithium hydroxide monohydrate and lithium chloride, and consists of 16 parts.

- Part 1: Determination of lithium carbonate content - Titration; the purpose is to establish the determination method of lithium carbonate content.

- Part 2: Determination of lithium hydroxide content - Acid-alkali titrimetric method; the purpose is to establish the determination method of lithium hydroxide content.

purpose is to establish the determination method of lithium chloride content.

spectrometric method; the purpose is to establish the determination method of potassium and sodium content.

method; the purpose is to establish the determination method of calcium content.

spectrometric method; the purpose is to establish the determination method of magnesium content.

method; the purpose is to establish the determination method of iron content.

method; the purpose is to establish the determination method of silicon content.

purpose is to establish the determination method of sulfate content.

- Part 10: Determination of chloride content - Silver chloride nephelometry method;
the purpose is to establish the determination method of chlorine content.
purpose is to establish the determination method of acid-insolubles content.
purpose is to establish the determination method of lithium carbonate content.
bromide spectrophotometric method; the purpose is to establish the determination method
of aluminum content.
method; the purpose is to establish the determination method of arsenic content.

- Part 15: Determination of fluoride content - Ion selective method; the purpose is to
establish the determination method of fluorine content.
manganese, cadmium, aluminum, iron and sulfate contents - Inductively coupled plasma
atomic emission spectrometry; the purpose is to establish the determination method of
multi-element content.

The acid-alkali titrimetric method for determining lithium carbonate content is simple to
operate. This revision adds a method for determining lithium carbonate content by
potentiometric method, which reflects the latest level of industry development and provides
scientific and feasible analysis and test methods for various production and R&D
companies, user companies and testing institutions in the upstream and downstream
industrial chains.

1 Scope

This document describes the determination methods of lithium carbonate content in lithium carbonate products, including acid-alkali titrimetric method (method 1) and potentiometric method (method 2).

This document applies to the determination of lithium carbonate content in lithium carbonate products, and the determination range (mass fraction): greater than 95.00 %. If other forms of carbonate exist, they will be converted into lithium carbonate for deduction.

2 Normative references

The following referenced documents are indispensable for the application 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.

GB/T 6682 Water for analytical laboratory use - Specification and test methods GB/T 8170 Rules of rounding off for numerical values & expression and judgement of limiting values GB/T 12805 Laboratory glassware - Burettes GB/T 17433 Foundation terms for chemical analysis of metallurgical products