



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

**中华人民共和国国家标准**

**GB/T 11064.12-2013**

Replace GB/T 11064.12-1989

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**Methods for chemical analysis of lithium  
carbonate, lithium hydroxide monohydrate and  
lithium chloride -**

**Part 12: Determination of carbonate content-  
Acid-alkali titrimetric method**

碳酸锂、单水氢氧化锂、氯化锂 化学分析方法

第 12 部分：碳酸根量的测定 酸碱滴定法

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# Foreword

GB/T 11064 "Methods for chemical analysis of lithium carbonate, lithium hydroxide monohydrate and lithium chloride" is divided into 16 parts:

- Part 1: Determination of lithium carbonate content - Acid-alkali titrimetric method
- Part 2: Determination of lithium hydroxide content - Acid-alkali titrimetric method
- Part 3: Determination of lithium chloride content - Potentiometric method
- Part 4: Determination of potassium and sodium content - Flame atomic absorption spectrometric method
- Part 5: Determination of calcium content - Flame atomic absorption spectrometric method
- Part 6: Determination of magnesium content - Flame atomic absorption spectrometric method
- Part 7: Determination of iron content-1,10-phenanthroline spectrophotometric method
- Part 8: Determination of silicon content - Molybdenum blue spectrophotometric method
- Part 9: Determination of Sulfate Content - Barium Sulfate Nephelometry Method
- Part 10: Determination of chloride content - Silver chloride nephelometry method
- Part 11: Determination of Acid-insolubles Content - Gravimetric Method
- Part 13: Determination of aluminum content - Chromazurol S-cetylpyridine bromide spectrophotometric method
- Part 14: Determination of arsenic content - Molybdenum blue spectrophotometric method
- Part 15: Determination of Fluoride Content - Ion Selective Method
- Part 16: Determination of calcium, magnesium, copper, lead, zinc, nickel, manganese, cadmium and aluminum content - Inductively coupled plasma atomic emission spectrometry

This Part is part 12 of GB/T 11064.

This Part is drafted in accordance with rules given in GB/T 1.1-2009.

The Part replaces GB/T 11064.12-1989 "Lithium hydroxide monohydrate-Determination of carbon dioxide content-Absorption titrimetric method".

Compared with GB/T 11064.12-1989, the main changes of this Part are as follows:

- ADD the repeatability terms;

- RE-EDIT the text format; ADD the test report.

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

Drafting organizations of this Part: Xinjiang Wuxin Lithium Salt Development Co., Ltd., Sichuan Tianqi Lithium Industries Inc., Haimen Ronghui General Lithium Co., Ltd., Jiangxi ganfeng Lithium Co., Ltd. And Xinjiang Research Institute of Non ferrous Metals.

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The historical version replaced by this Part is as follows:

- GB/T 11064.12-1989.

# **Methods for chemical analysis of lithium carbonate, lithium hydroxide monohydrate and lithium chloride -**

## **Part 12: Determination of carbonate content- Acid-alkali titrimetric method**

### **1 Scope**

This part of GB/T 11064 specifies the determination method of carbonate content in lithium carbonate, lithium hydroxide monohydrate and lithium chloride.

The part applies to the determination of carbonate content in lithium carbonate, lithium hydroxide and monohydrate and lithium chloride. The determination range: 0.15%~2.00%.

### **2 Method Summary**

Dissolve the sample with water, take phenolphthalein as the indicator and titrate it with hydrochloric acid standard solution to disappear the red in the solution and then take methyl orange as the indicator. Continue to titrate it with hydrochloric acid standard solution to make it with stable orange-red and this is the end and then calculate the amount of carbonate.

### **3 Reagents**

Unless otherwise specified, the reagent used in the part is an analytical pure reagent, and the water used here is the secondary deionized water.

3.1 Phenolphthalein indicator (10 g / L): weigh 1 g of phenolphthalein and dissolve it in 100 mL of ethanol (95%).

3.2 Methyl orange indicator (1 g / L): weigh 0.1 g of methyl orange, dissolve it in water at 70 °C, cool it and dilute it to 100 mL.

3.3 Hydrochloric acid solution (2 mol / L): pipette 167 mL of hydrochloric acid ( $\rho = 1.19$  g / mL), place it in a 1000 mL volumetric flask, dilute it to the mark and shake it well.

3.4 Methyl red - bromocresol green indicator: pipette 30 mL of bromocresol green solution (3.4.1) and 10 mL of methyl red solution (3.4.2) and mix them well.

3.4.1 Bromocresol green solution: weigh 0.1 g of bromocresol green and dissolve it in 100 mL of ethanol.



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