



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

**中华人民共和国国家标准**

**GB/T 11064.7-2013**

Replace GB/T 11064.7-1989

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

**Part 7: Determination of iron content -  
1,10-Phenanthroline spectrophotometric method**

碳酸锂、单水氢氧化锂、氯化锂 化学分析方法

第 7 部分：铁量的测定 邻二氮杂菲分光光度法

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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 7 of GB/T 11064.

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

The Part replaces GB/T 11064.7-1989 "Lithium carbonate,lithium hydroxide monohydrate and lithium chloride-Determination of iron content-1.10-phenanthroline spectrophotometric method".

Compared with GB/T 11064.7-1989, 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., Jiangxi Dongpeng New Material Co., Ltd., Lithium-Calcum Company, CNNC Jianzhong Nuclear Fuel Co.,Ltd., Beijing General Research Institute of Mining &Metallurgy and Xinjiang Research Institute of Non ferrous Metals.

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The historical version replaced by this Part is as follows:

- GB/T 11064.7-1989.

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

## **Part 7: Determination of iron content - 1,10-Phenanthroline spectrophotometric method**

### **1 Scope**

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

The part applies to the determination of iron content in lithium carbonate, lithium hydroxide and monohydrate and lithium chloride. The determination range: 0.00030%~0.030%.

### **2 Method Summary**

Dissolve the sample in hydrochloric acid. Reduce the iron (III) to iron (II) by ascorbic acid. In the pH3.5 acetate buffer medium, iron (II) reacts with phenanthroline to produce a salmon complex compound, whose absorbance should be measured at the 510nm wavelength of a spectrophotometer.

### **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 Hydrochloric acid (1+1), GR

3.2 Hydrochloric acid (1+7), GR

3.3 Hydrochloric acid (2+1), GR

3.4 Ammonia (1+1), GR

3.5 Ascorbic acid solution (25g/L), prepared when used.

3.6 Phenanthroline solution (2g/L): weigh 0.2g of phenanthroline and dissolve it in 100mL of ethanol solution (1+1).

3.7 Acetic acid- sodium acetate buffer solution (pH3.5): weigh 16g of sodium acetate anhydrous into a 500mL beaker. Add water to the beaker to dissolve the sodium acetate anhydrous and then add 170mL of glacial acetic acid. Move the mixture to a 1,000mL volumetric flask and dilute it with water to the scale and finally shake it up.



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