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

中华人民共和国国家标准

GB/T 11064.16-2013

Replace GB/T 11064.16-1989

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

**Part 16: Determination of calcium, magnesium, copper, lead,
zinc, nickel, manganese, cadmium and aluminum content-
Inductively coupled plasma atomic emission spectrometry**

碳酸锂、单水氢氧化锂、氯化锂 化学分析方法

**第 16 部分：钙、镁、铜、铅、锌、镍、锰、镉、铝量的测定
电感耦合等离子体原子发射光谱法**

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**Standardization Administration of the People's Republic of
China.**

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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 16 of GB/T 11064.

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

The Part replaces GB/T 11064.17-1989 "Lithium carbonate-Determination of iron and lead contents-Coprecipitation-flame atomic absorption spectrometric method" and GB/T 11064.18-1989 "Lithium carbonate - Determination of calcium, magnesium, copper, zinc, nickel, manganese and cadmium content-Ion exchange-flame atomic absorption spectrometric method"

Compared with GB/T 11064.17-1989 and GB/T 11064.18-1989, the main technical changes are as follows:

- The determination method is modified from "Flame atomic absorption spectrometric method" to "Inductively coupled plasma atomic emission spectrometry";
- 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: Ganzhou Non-ferrous Metallurgy Research Institute, Xinjiang Research Institute of Non ferrous Metals and Beijing General Research Institute of Mining &Metallurgy.

The main drafters of this Part: Liu Hong, Pan Jianzhong, Li Ying, Guan Yuzhen, Wang Hongchuan and Feng Xianjin.

The historical version replaced by this Part is as follows:

- GB/T 11064.18-1989.

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

Part 16: Determination of calcium, magnesium, copper, lead, zinc, nickel, manganese, cadmium and aluminum content- Inductively coupled plasma atomic emission spectrometry

1 Scope

This part of GB/T 11064 specifies the determination method of calcium, magnesium, copper, lead, zinc, nickel, manganese, cadmium and aluminum content in lithium carbonate, lithium hydroxide monohydrate and lithium chloride.

This part applies to the determination of the content of calcium, magnesium, copper, lead, zinc, nickel, manganese, cadmium, aluminum in lithium carbonate, lithium hydroxide monohydrate and lithium chloride. The determination range is 0.000 1%~0.008 0% of manganese, cadmium, nickel and zinc; 0.000 2%~0.008 0% of calcium, aluminum, copper and magnesium; 0.000 4%~0.008 0% of lead.

2 Method Summary

The lithium carbonate and lithium hydroxide monohydrate shall be decomposed by nitric acid and the lithium chloride shall be decomposed by water. Determine the content of calcium, magnesium, copper, lead, zinc, nickel, manganese, cadmium, aluminum in nitric acid medium on ICP-AES instrument though the matched matrix method.

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

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

3.3 Nitric acid solution (1 + 1).

3.4 Hydrochloric acid solution (1 + 1).

3.5 Aluminum standard storage solution: weigh 0.100 0 g of pure aluminum (pure spectrum and wipe the oxide on it before use) and place it in a 200mL beaker; add 20 mL

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