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

GB/T 11064.6-2013

Replacing GB 11064.6-1989

**Methods for chemical analysis of lithium carbonate, lithium hydroxide
monohydrate and lithium chloride - Part 6: Determination of
magnesium content - Flame atomic absorption spectrometric method**

碳酸锂、单水氢氧化锂、氯化锂化学分析方法 第6部分：镁量的测定 火焰原子吸收光谱法

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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

5 Samples

5.1 The samples of lithium carbonate and lithium chloride shall be preheated at 250°C~260°C for 2h; then cool down to room temperature in a desiccator.

6 Analysis Steps

6.1 Samples Weigh 2.50g of the sample, accurate to 0.0001g.

6.2 Number of Determination Independently carry out two measurements; take the mean value.

6.5 Working Curve Plotting

6.5.1 Pipette 0 mL,

15.00 mL of magnesium standard solution (3.6); place in a series of 50 mL volumetric flasks; add

1.0 mL of hydrochloric acid (3.1),

2.0 mL of lanthanum salt solution (3.2), and

2.0 mL of strontium salt solution (3.3); dilute to scale with water; mix well.

8 Precision

8.1 Repeatability For the two independent test results obtained under repeatability conditions, within the average-value range as given below, the absolute difference of these two test results does not exceed the repeatability limit (r), and the situation exceeding repeatability limit (r) is not more than 5%.

8.2 Allowable difference The difference of analysis results among laboratories shall not be more than the allowable difference in Table 3.

11 Determination of Acid-insolubles Content - Gravimetric method; - Part

12.Determination of carbonate content - Determination of lithium chloride content - Potentiometric 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 6 of GB/T 11064. This Part is drafted in accordance with rules given in GB/T 1.1-2009. The Part replaces GB/T 11064.6-1989 "Lithium carbonate, lithium hydroxide monohydrate and lithium chloride-Determination of magnesium content-Flame atomic absorption spectrometric method". Compared with GB/T 11064.6-1989, 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. Ganzhou Non-ferrous Metallurgy Research Institute, Xinjiang Research Institute of Non ferrous Metals, and Haimen Ronghui General Lithium Co., Ltd. The main drafters of this Part. Pan Jianzhong, Zeng Xianqin, Liu Bailu, Guan Yuzhen, Wang Hongchuan, Deng Hongyun, and Lizhendong. The historical version replaced by this Part is as follows: - GB/T 11064.6-1989. Methods for chemical analysis of lithium carbonate, lithium hydroxide monohydrate and lithium chloride - Part

6. Determination of magnesium content - Flame atomic absorption spectrometric method

1 Scope This part of GB/T 11064 specifies the determination method of magnesium content in lithium carbonate, in lithium hydroxide monohydrate, and in lithium chloride. The part applies to the determination of magnesium content in lithium carbonate, in lithium hydroxide monohydrate, and in lithium chloride. The determination range. 0.0005% ~ 0.020%.

2 Method Summary Use hydrochloric acid to decompose lithium carbonate and lithium hydroxide monohydrate; dissolve the lithium chloride specimen with water; in the hydrochloric acid medium, use the air-acetylene flame to measure the absorbance of magnesium at 285.2 nm wavelength of atomic absorption spectrometer; use the working curve method to determine the magnesium.

3 Reagents Unless otherwise specified, the reagent used in the part is an analytical pure reagent, and the water used in this Part is the secondary deionized water.

3.1 Hydrochloric acid (1+1).

3.5 Magnesium standard solution A. take 10.00mL of magnesium standard stock solution (3.4) into a 1000mL volumetric flask. Dilute it with water to the scale; shake up. 1mL of this solution contains 10μg of magnesium.

3.6 Magnesium standard solution B. take 10.00mL of magnesium standard solution (3.5) into a 1000mL volumetric flask. Dilute it with water to the scale; shake up. 1mL of this solution contains 1μg of magnesium. Prepare when it is used.

4 Instrument The atomic absorption spectrometer. with the cadmium hollow cathode lamp. Under the optimal working conditions, those instruments that can reach the following indicators can also be used.

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