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

GB/T 21994.5-2008

**Chemical analysis of magnesium fluoride - Part 5:
Determination of calcium content - Method of flame atomic
absorption spectrometry**

氟化镁化学分析方法 第5部分：钙含量的测定 火焰原子吸收光谱法

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Foreword

GB/T 21994 "Chemical analysis of magnesium fluoride" is divided into eight sections.

- Part 1. Preparation and storage of test samples;
- Part 2. Determination of the weight of water in the wet method;
- Part 3. Determination of distillation of fluorine content - thorium nitrate volumetric method;
- Part 4. Determination of magnesium content - EDTA volumetric method;
- Part 5. Determination of calcium content by flame atomic absorption spectrometry;
- Part 6. Determination of silicon dioxide content - Molybdenum blue spectrophotometric method;
- Part 7. Determination of iron oxide content phenanthroline spectrophotometry;
- Part 8. Determination of sulfate content of barium sulfate gravimetric method. This is Part 5. This part is proposed by the China Nonferrous Metals Industry Association. The non-ferrous metal part by the National Standardization Technical Committee. This section is Hunan Nonferrous fluorine chemical limited liability company, China Nonferrous Metals Industry Institute of Standards Metrology and Quality is responsible for drafting. Drafting this Part. Aluminum Corporation of China Zhengzhou Research Institute. Participated in the drafting of this section. Hunan Nonferrous fluorine chemical limited liability company, Silver fluoride limited liability company. The main drafters of this section. Feng Jingdong, Wang Guifang, Shi Lei, Li Zhijian, Zhu Liang, Wang Bo, Li Ye. Chemical analysis of magnesium fluoride Part 5. Determination of calcium content Flame Atomic Absorption Spectrometry

1 Scope

GB/T 21994.5-2008 is the Chinese national standard on chemical analysis of magnesium

fluoride - part 5: determination of calcium content - method of flame atomic absorption spectrometry, in the field of metallurgy. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 9 June 2008 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 December 2008. Classification: ICS 77.040.30, CCS H12. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This section specifies the determination method of calcium magnesium fluoride. This section applies to the determination of magnesium fluoride of calcium. Measuring range. $\leq 1.5\%$.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this section, however, encourage the parties to this part of the research agreement Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 21994.1-2008 Chemical analysis of magnesium fluoride - Part 1. Sample Preparation and Storage

3 Method summary

Sample with perchloric acid, hydrochloric acid decomposition, lanthanum chloride solution or strontium chloride solution as release agents, calcium was determined by atomic absorption spectrometry content.

4 Reagents

4.1 perchloric acid (GR, $\rho = 1.67 \text{ g/cm}^3$).

4.2 HCl (1 + 1).

4.3 strontium chloride (SrCl_2 for) solution (100g/L).

4.4 lanthanum chloride ($\text{LaCl}_3 \cdot 7\text{H}_2\text{O}$) solution (100g/L).

4.5 magnesium fluoride (MgF_2) substrate solution. Weigh 0.2000g of magnesium fluoride (spectroscopically pure) in a platinum dish, add a little water, 5mL perchlorate (4.1), low-temperature heating to take to make white smoke, again adding a small amount of

water and 5mL perchloric acid (4.1), low-temperature heating to take to make white smoke, remove the cooled to room Temperature, was added 5mL hydrochloric acid (4.2), and 30mL of water, heated and dissolved salts, remove cooling to room temperature, the solution is transferred 100mL volumetric flask Water, dilute to the mark, and mix.

4.6 Calcium standard stock solution. Weigh 1.2486g of calcium carbonate (CaCO_3 , reference reagents at 110 °C drying 2h, cooled in the dryer to Room temperature) in 500mL beaker, was added 50mL of water, 10 mL of hydrochloric acid (4.2), heat gently to dissolve added, heating was continued to remove CO_2 , cooling to remove Room temperature, the solution is transferred to 500mL volumetric flask, dilute to the mark, mix, 1mL solution containing 1.000mg of calcium.

4.7 Calcium standard solution. Pipette 20.00mL calcium standard stock solution (4.6) in 200mL volumetric flask, dilute with water to volume, and mix this solution 1mL 0.1000mg containing calcium.

5 Instruments and equipment

5.1 platinum dish.

5.2 Flame atomic absorption spectrometer, equipped with a calcium hollow cathode lamp, use bottled acetylene gas.

6 Sample

The specimen shall comply with GB/T 21994.1-2008 in

3.3 requirements.