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

GB/T 13748.10-2013

Replacing GB/T 13748.10-2005

**Chemical analysis methods of magnesium and magnesium
alloys -- Part 10: Determination of silicon content --
Molybdenum blue spectrophotometric method**

镁及镁合金化学分析方法 第10部分：硅含量的测定 钼蓝分光光度法

(English Translation)

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Foreword

GB/T 13748 "analysis methods of magnesium and magnesium alloys" is divided into 22 parts.

- Part 1. Determination of aluminum content;
- Part 2. Determination of tin content pyrocatechol violet spectrophotometry;
- Part 3. Determination of lithium content Flame atomic absorption spectrometry;
- Part 4. Determination of manganese content periodate spectrophotometry;
- Part 5. Determination of yttrium content inductor coupled plasma atomic emission spectrometry;
- Part 6. Determination of silver by flame atomic absorption spectrometry;
- Part 7. Determination of zirconium content;
- Part 8. rare earth content Gravimetric method;
- Part 9. Determination of iron content phenanthroline spectrophotometry;
- Part 10. Determination of silicon content - Molybdenum blue spectrophotometric method;
- Part 11. Determination of beryllium content Eriochrome cyanine R spectrophotometry;
- Part 12. Determination of copper content;
- Part 13. Determination of lead content by flame atomic absorption spectrometry;
- Part 14. Determination of nickel dimethylglyoxime spectrophotometry;
- Part 15. Determination of zinc content;
- Part 16. Determination of calcium content by flame atomic absorption spectrometry;

- Part 17. potassium content and sodium content - Flame atomic absorption spectrometry;
- Part 18. Determination of the chlorine content of silver chloride turbidimetric method;
- Part 19. Determination of titanium content security for DAM spectrophotometry;
- Part 20. ICP-AES determination of element contents;
- Part 21. photoelectric direct reading atomic emission spectroscopy method element content;
- Part 22. Determination of thorium content.

This section GB/T 13748 Part 10.

The object is to have a standard adoption of Part 1, Part 4, Section 7, Section 8, Section 9, Section 10, Section 12, Part 14, Part 159 sections revised.

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

This Part replaces GB/T 13748.10-2005 "Determination of magnesium and magnesium alloys - Analysis of silicon content - Molybdenum blue spectrophotometric law".

This section compared with the GB/T 13748.10-2005, the main technical changes are as follows.

- To increase the "lab report" requirement;
- Remove the "quality assurance and control" requirements.

This section uses redrafted reference method ISO 1975. 1973 "Magnesium and magnesium alloys - Determination of silicon molybdenum blue photometric method", and ISO 1975.

1973 non-equivalent.

The non-ferrous metal part by the National Standardization Technical Committee (SAC/TC243) centralized.

This section is responsible for drafting units. Aluminum Corporation of China Zhengzhou Research Institute, China Nonferrous Metals Industry Quality Standards and Metrology Institute the study.

This section is drafted. Beijing Nonferrous Metal Research Institute.

1 Scope

GB/T 13748 provisions of this part of the determination of magnesium and magnesium alloy of silicon content.

This section applies to the determination of magnesium and magnesium alloy of silicon content. Measurement range. 0.0020% to 1.50%.

2 Method summary

Sample with bromine water - sulfuric acid dissolved potassium fluoride complex silicon. In pH1.0 ~ 1.5, the formation of silicon and silicon molybdenum yellow molybdate heteropoly acid, tartaric in with an acid in the presence of ascorbic acid, sulfuric acid medium high acidity is reduced to silicon molybdenum blue at 810nm wavelength spectrophotometer measured absorbance.

3.1 Mg [w (Mg) >=99.9%, silicon-free]

3.2 Bromine water (saturated solution).

3.3 hydrochloride (11).

3.4 sulfate (25).

3.5 potassium fluoride solution (50g/L).

Ammonia 3.6 (11) (high purity).

3.7 saturated solution of boric acid.

3.8 ammonium molybdate solution (100g/L).

3.9 tartaric acid solution (200g/L).

3.10 ascorbic acid solution (20g/L, with the preparation).

Silicon 3.11 Standard stock solution. Weigh 0.2140g silica (previously calcined at 1000 °C 1h and cooled to room temperature in a desiccator) in a platinum crucible, 5g of anhydrous sodium carbonate, stir well, then cover the top 1g of anhydrous sodium carbonate in 950 °C to melt transparent, cool. Thermal Flooding, the solution was heated to clear, cool. Moved into 1000mL volumetric flask, dilute to the mark with water, stored in a plastic bottle. This solution 1mL containing 100µg silicon.

3.12 Silicon standard solution. Pipette 50.00mL silicon standard stock solution (3.11) into 500mL volumetric flask, dilute to the mark with water, mix uniform. Stored in plastic bottles. This solution 1mL containing 10µg silicon.

3.13 pairs nitrophenol solution (1g/L).

4 Instrument

Spectrophotometer.

5 Sample

Thickness of less than 1mm debris.