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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 5121.18-2008

Replace GB/T 5121.18-1996

**Methods for chemical analysis of copper and
copper alloys— Part 18: Determination of
magnesium content**

铜及铜合金化学分析方法 第 18 部分：镁含量的测定

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Foreword

There are 27 parts for GB/T 5121 *Methods for Chemical Analysis of Copper and Copper Alloy*.

- Part 1: Determination of copper content
- Part 2: Determination of phosphorus content
- Part 3: Determination of Pb content
- Part 4: Determination of carbon content and sulfur content
- Part 5: Determination of nickel content
- Part 6: Determination of Bi Content
- Part 7: Determination of As content
- Part 8: Determination of oxygen content
- Part 9: Determination of iron content
- Part 10: Determination of Sn content
- Part 11: Determination of Zn content
- Part 12: Determination of Sb content
- Part 13: Determination of Mn content
- Part 14: Determination of Mn content
- Part 15: 5.11Determination of Co content
- Part 16: Determination of Cr content
- Part 17: Determination of Be content
- Part 18: Determination of Mg content
- Part 19: Determination of Ag content
- Part 20: Determination of Zr content
- Part 21: Determination of Ti content
- Part 22: Determination of Cd content
- Part 23: Determination of Si content
- Part 24: Determination of Se content and Te content
- Part 25: Determination of B Content
- Part 26: Determination of Hg content
- Part 27: Inductively coupled plasma - atomic emission spectrometry.

This is part 18.

This part will replace GB/T 5121.18-1996 *Copper and copper alloys-Determination of magnesium content*.

Comparison with GB/T 5121.18-1996, main changes of this part are as follows:

- Deleted “normative references”;
- Revised for original standard format;
- Supplemented quality guarantee and control articles, added precious article.

This part is proposed by China Nonferrous Metals Industry Association.

This part is under the jurisdiction of the National Standardization Technology Committee on Nonferrous Metals.

Chinalco Luoyang Copper Co., Ltd., Beijing General Research Institute of Mining & Metallurgy and Institute of China Nonferrous Metals Industry Standard, Metrology and Quality are responsible for the drafting of this part.

Methods for chemical analysis of copper and copper alloys— Part18: Determination of magnesium content

1 Scope

This part stipulates the determination method for magnesium content in copper and copper alloy.

This part applies to the determination for magnesium content in copper and copper alloy.

Determination scope: 0.15%-1.00%.

2 Method summary

Dissolve the specimen with nitric acid and hydrofluoric acid. In the nitric acid medium, use the air-acetylene flame and determine the absorbance of magnesium at the wavelength of 285.2nm of the atomic absorption spectrometer. Add strontium nitrate to eliminate the interference of silicon, aluminum, titanium and beryllium; Other coexisting elements of copper, nickel, lead and zinc etc. do not interfere the determination.

3 Reagent

Unless otherwise specified, only reagent recognized as analytically pure and distilled water or deionized water or water of equal purity are used in analysis.

3.1 Hydrofluoric acid (p1.13g/mL).

3.2 Nitric acid (1+1).

3.3 Boric acid solution (30g/L).

3.4 Strontium nitrate solution (25g/L).

3.5 Magnesium standard storage solution: weigh and put pure magnesium (the mass fraction of magnesium $\geq 99.95\%$) of 0.1000g into the beaker of 150mL. Add nitric acid (3.2) of 10mL. Heat to dissolve and boil and eliminate oxides of nitrogen and cool it. Place in a 1000mL volumetric flask, dilute with water to the scale and evenly mix it. 1mL of this solution contains 100 μ g magnesium.

3.6 Standard magnesium solution: Take 10.00mL magnesium standard storage solution (3.5) in 100mL volumetric flask, dilute with water to the scale and mix it evenly. 1mL of this solution contains 10 μ g magnesium.

4 Instrument



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