



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

**中华人民共和国国家标准**

GB 5413.21-2010

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**National food safety standard**

**Determination of calcium, iron, zinc, sodium, potassium,  
magnesium, copper and manganese in foods for infants and  
young children, milk and milk products**

**食品安全国家标准**

**婴幼儿食品和乳品中钙、铁、锌、钠、钾、镁、铜和  
锰的测定**

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## Contents

Foreword.....	1
1. Scope.....	1
2. Normative References.....	1
3. Principle.....	1
4. Reagents and materials.....	1
5. Equipments and devices:.....	3
6. Analysis steps.....	4
6.1 Sample preparation.....	4
6.2 Testing solution preparation of samples.....	4
6.3 Determination.....	4
7. Result expression.....	6
8. Precision.....	7
9. Principle.....	7
10. Reagents and materials.....	7
11. Equipments and devices:.....	7
12. Analysis Procedure.....	8
12.1 Sample preparation.....	8
12.2 Sample treatment.....	8
12.3 Parallel experiment.....	8
12.4 Blank experiment.....	8
12.5 Reference operation condition of equipments.....	8
12.6 Preparation of mixed standard solution.....	8
12.7 Determination.....	9
13. Result expression.....	9
14. Precision.....	9
15. Others.....	10

## Foreword

This standard will replace GB/T 5413.21-1997, *Measurement of calcium, ferrum, zinc, sodium, potassium, magnesium, copper and manganese in formulated foods and milk powder for infants and young children*

The main changes in this standard compared with GB 5413.21 -1997 are as following:

- Certified reference stock can be directly purchased in method 1
- The preparation standard stock solution and standard working solution in method 1
- The dilution steps for sample preparation in method 1.
- Add the second measurement method of inductively coupled plasma atomic emission spectrometry.

Versions of standard substituted by this standard are:

- GB 5413-1985, GB/T 5413.21-1997.

# **National food safety standard**

## **Determination of calcium, iron, zinc, sodium, potassium, magnesium, copper and manganese in foods for infants and young children, milk and milk products**

### **1. Scope**

This standard specifies the method for the determination of calcium, ferrum, zinc, sodium, potassium, magnesium, copper and manganese in food for infants and young children and dairy products.

This standard applies to the determination of calcium, ferrum, zinc, sodium, potassium, magnesium, copper and manganese in food for infants and young children and dairy products.

### **2. Normative References**

The normative documents referenced in the text are indispensable to the application of this standard. For dated references, only the edition bearing such date applies to this standard. For undated references, the latest edition of the normative document referred to (including all the amendments) applies.

## **Method I Atomic absorption spectrometry**

### **3. Principle**

Dry ash the samples to break down organic part. Dissolve the inorganic ions in the ash by acid. Aspirate into air-acetylene flame for atomization. Measure absorbance under specific wavelength. When measuring calcium and magnesium, lanthanum should be added as releasing agent to eliminate the interference by phosphoric acid.

### **4. Reagents and materials**

Unless additionally specified, the reagents used by this method are GR, and water is the second grade water specified by GB/T6682.

**4.1** Hydrochloric acid

**4.2** Nitric Acid

**4.3** Lanthanum solution



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