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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 5009.92-2003

Replace GB/T 12398-1990

Determination of calcium in foods

食品中钙的测定

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Issued by Ministry of Health (MOH) of the People's Republic of China

**Standardization Administration of the People's Republic of China
(SAC)**

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Foreword

Atomic absorption spectrometry (aas) in this standard corresponding to ISO 6490/2 *Animal feeding stuffs -- Determination of calcium content -- Part 2: Atomic absorption spectrometric method* (English version, 1983). Atomic absorption spectrometry (aas) in this standard is not equivalent to ISO 6490/2.

Titration in this standard corresponding to CAC/RM 38-1970 *Determination of calcium in canned vegetables—EDTA Titration* (English version, 1970). Titration in this standard is not equivalent to CAC/RM 38.

This Standard will replace GB/T 12398-1990.

Comparison with GB/T 12398-1990, main changes of this Standard are as follows:

- Changed the Chinese title as *Determination of calcium in foods*;
- Changed the structure of original standard according to GB/T 20001.4-2001 *Rules for drafting standards—Part 4: Methods of chemical analysis*.

This Standard is proposed and under the jurisdiction of the Ministry of Health (MOH) of the People's Republic of China.

Chief draft unit of this standard: Nutrition and Food Hygiene Research Institute of Chinese Institute of Preventive Medicine.

Chief drafters of this standard: Zhou Xinghan, Men Jianhua and Wang Guangya.

This standard was issued for the first time in 1990, and revised now for the first time.

Determination of calcium in foods

1 Scope

This standard specifies the determination methods of calcium in foods: atomic absorption spectrophotometry and titration.

This standard is applicable to the determination of calcium in various foods.

The detection limit of atomic absorption spectrophotometry in this standard is 0.1 μ g and the linear range is 0.5 μ g~2.5 μ g; the linear range of titration is 5 μ g~50 μ g.

Atomic Absorption Spectrophotometry

2 Principle

The sample shall be wet digested and led into the atomic absorption spectrophotometer, then the sample will be atomized by flame and absorb 422.7 nm resonance line, the absorption capacity is proportional to the calcium content and shall be quantified through comparison with the standard series.

3 Reagents

3.1 Hydrochloric acid.

3.2 Nitric acid.

3.3 Perchloric acid.

3.4 Digestive fluid of mixed acid: nitric acid + perchloric acid=4+1.

3.5 0.5mol/L nitric acid solution: measure 32mL of nitric acid, then add deionizer water and dilute it to 1000mL.

3.6 20g/L of lanthanum oxide solution: Measure 23.45g of lanthanum oxide (with the purity of higher than 99.99%), now wet it with a small amount of water, add 75mL of hydrochloric acid into 1,000mL of volumetric flask and dilute it to the graduation by adding deionized water.

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