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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 5009.123-2003

Replace GB/T 14962-1994

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**Determination of chromium in foods**

**食品中铬的测定**

**Issued on August 11, 2003**

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**Issued by Ministry of Health of the People's Republic of China**

**Standardization Administration of the People's Republic of  
China**

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## Foreword

This standard will replace GB/T 14962-1994 *Method for determination of chromium in foods*.

Comparison with GB/T 14962-1994, main changes of this standard are as follows:

- Changed the Chinese title of standard as *Determination of chromium in foods*;
- Revised the structural of previous standard according to GB/T 20001.4-2001 *Rules for drafting standards--Part 4: Methods of chemical analysis*.

This standard is proposed by and under the jurisdiction of Ministry of Health of the People's Republic of China.

The responsible drafting organizations of method I of this standard are Hebei Sanitation and Anti-epidemic Station, Henan Food Hygiene Supervision and Inspection Institute, West China Medical University and Nanjing Railway Medical College.

The responsible drafting organizations of method II of this standard are West China Medical University and Institute of Nutrition and Food Hygiene. Chinese Academy of Preventive Medicine.

The chief drafting staff of method I of this standard includes Zhang Xinmian, Wang Huaizhou, Li Fasheng, Tian Yongbi and Jiang Zhaokun.

The chief drafting staff of method II of this standard includes Wang Guangjian, Tian Yongbi and Wang Huaizhou.

Previous standard was issued on 1994 for the first time and this is first revision.

# Determination of chromium in foods

## 1 Scope

This standard stipulates the content of chromium in foods which is determined by graphite furnace atomic absorption spectrometry (GFAAS) and oscilloscope polarography method.

This standard is applicable to the determination of total chromium in all kinds of food.

This detection limit of this standard: GFAAS is 0.2ng/mL; oscilloscope polarography method is 1ng/mL.

### First method Graphite Furnace Atomic Absorption Spectrometry (GFAAS)

## 2 Principle

After digestion, the sample is dissolved by deionized water and diluted to certain volume. To atomize liquid sample, absorb appropriate amount of liquid sample into graphite furnace atomizer. Under the parameter of designed instrument, chromium absorbs the resonance line with 357.9nm wavelength, and the absorbance is in proportion to content of chromium.

## 3 Reagents

3.1 Nitric acid.

3.2 Perchloric acid.

3.3 Hydrogen peroxide.

3.4 Saltpeter solution 1.0mol/L.

3.5 Chromium standard solution: dissolve 1.4135g of prime potassium chromate in water, and dilute with water to 500mL. This solution with 1.0mg/mL of chromium is standard stock solution. When using this solution, dilute it with 1.0mol/L nitric acid into standard solution with 100ng/mL chromium.

## 4 Instruments

Soak the glassware and teflon inner barrel of high-pressure digestion tank in hot hydrochloric acid (1+1) for 1h and in hot nitric acid (1+1) for 1h, and then rinse thoroughly with water before each use.

4.1 Atomic absorption spectrophotometer



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