ICS 67.040

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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 5009.17-2003

Replace GB/T 5009.17-1996, partial replace GB/T 5009.45-1996

Determination of total mercury and organic-mercury in foods

食品中总汞及有机汞的测定

Issued on August 11, 2003 Implemented on January 01, 2004

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

Standardization Administration of the People's Republic of China

Contents

Foreword

This standard will replace GB/T 5009.17-1996 *Method for determination of total mercury in foods* and 4.6 Methylmercury of GB/T 5009.45-1996 *Method for analysis of hygienic standard of fish and other aquatic products*.

Comparison with GB/T 5009.17-1996 and 4.6 Methylmercury of GB/T 5009.45-1996 *Method for analysis of hygienic standard of fish and other aquatic products*, main changes of this standard are as follows:

— Changed the Chinese title of standard as *Determination of total mercury and organic-mercury 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 participate drafting organizations of method I of determination of total mercury in this standard are Food Hygiene Supervision and Inspection Institute of MOH, Beijing Food Hygiene Supervision and Inspection Institute, Sichuan Food Hygiene Supervision and Inspection Institute and Beijing Hygiene Supervision and Inspection of Import Food.

The responsible drafting organizations of method II (1) of determination of total mercury in this standard are Shanghai Food Hygiene Supervision and Inspection Institute, Institute of Nutrition and Food Hygiene, Chinese Academy of Preventive Medicine and Food Hygiene Supervision and Inspection Institute of MOH.

The responsible drafting organizations of method II (2) of determination of total mercury in this standard is Food Hygiene Supervision and Inspection Institute of MOH.

The responsible drafting organization of method III of determination of total mercury in this standard is Jiangsu Sanitation and Anti-epidemic Station.

The responsible drafting organizations of method III of determination of methylmercury in this standard are Shanghai Food Hygiene Supervision and Inspection Institute, Jiangsu

Sanitation and Anti-epidemic Station, Hangzhou Sanitation and Anti-epidemic Station, Food Hygiene Supervision and Inspection Institute of MOH, Qinghai Sanitation and Anti-epidemic Station and Fujian Hygiene School.

The chief drafting staff of method I of this standard includes Yang Huifen, Huang Liusheng, Mao Hong, Qiang Weiguo and Yan Jun.

Previous standard was issued on 1985 for the first time, first revised on 1996 and this is second revision.

Determination of total mercury and organic-mercury in foods

Determination of total mercury

1 Scope

This standard stipulates the method of determining the total mercury in all kinds of food.

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

Atomic fluorescence spectrometry: detection limit: 0.15μ/kg, the best linear range of standard curve 0μg/L~60μg/L; the detection limit of cold vapor atomic absorption spectrometry: pressure digestion method is 0.4μg/kg, other digestion methods are 10μg/kg; colorimetric method is 25μg/kg.

First method Atomic Fluorescence Spectrometry

2 Principle

After being digested by acid under high temperature, in acid media, mercury in samples is reduced to atomic state by potassium borohydride (KBH_4) or sodium borohydride. It is introduced to atomizer by carrier gas. Under special mercury hollow cathode lamp, the ground state mercury atom will be excited to high energy state. During the process of being deactivated to ground state, it can emit fluorescence of a characteristic wavelength. The fluorescence intensity is proportional to the content of mercury, determining content and comparing with standard series.

3 Reagents

3.1 Nitric acid (GR).

3.2 30% hydrogen peroxide.

3.3 Sulfuric acid (GR).

3.4 Sulfuric acid+ nitric acid+ water (1+1+8): measure 10mL nitric acid and 10mL sulfuric

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