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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 5009.84-2003

Replace GB/T 12390-1990

Determination of thiamine (vitamin B_1) in foods

食品中硫胺素（维生素 B_1）的测定

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

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

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

Contents

Foreword

This standard corresponding to AOAC 45.1.07 *Fluorimetry of thiamine in food (1995)*.

This standard is not equivalent to AOAC 45.1.07.

This Standard will replace GB/T 12390-1990.

Comparison with GB/T 12390-1990, main changes of this Standard are as follows:

— Changed the Chinese title as *Determination of thiamine (vitamin B_1) 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: Wang Guangya, Zhang Hongwei, Yang Xiaoli, Men Jianhua and Yang Yuexin.

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

Determination of thiamine (vitamin B_1) in foods

1 Scope

This standard specifies method for determination of thiamine in various foods.

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

The detection limit of the method is 0.05μg with the linear range of 0.2μg -10μg.

2 Principle

Thiamine is oxidized into pyrantel pigment in alkaline potassium ferricyanide, and pyrantel pigment emits fluorescence under ultraviolet rays. In given conditions and without the disturbance of other fluorescent substances, the intensity of this fluorescence is proportional to pyrantel pigment. Namely it is proportional to quantity of thiamine in solution. If the sample contains too many impurities, it shall be treated with ion exchanger to separate thiamine and impurities, and then determined with the obtained solution.

3 Reagents

3.1 Normal butanol: It needs to be used after redistillation.

3.2 Anhydrous sodium sulfate

3.3 Amylase and protease.

3.4 0.1 mol/L hydrochloric acid: 8.5mL of concentrated hydrochloric acid (relative density 1.19 or 1.20) is diluted to 1 000mL with water.

3.5 0.3 mol/L hydrochloric acid: 25.5mL of concentrated hydrochloric acid is diluted to 1000mL with water.

3.6 2 mol/L sodium acetate solution: 164 g of anhydrous sodium acetate is diluted to 1000mL in water.

3.7 Potassium chloride solution (250 g/L): 250 g of potassium chloride solution is diluted to

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