

ICS 67. 040

C 53



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

中华人民共和国国家标准

GB/T 5009.82-2003

Replace GB/T 12388-1990

Determination of retinol and tocopherol in foods

食品中维生素 A 和维生素 E 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.....	1
1 Scope	1
2 Principle	1
3 Reagents	1
4 Instruments and equipment	3
5 Analysis procedures	3
6 Result calculation	7
7 Precision	7
8 Principle	7
9 Reagents	7
10 Instruments	8
11 Analysis procedures	9
12 Determination	11
13 Result calculation	11
14 Precision	12

Foreword

The first method of this standard corresponding to AOAC.992.06 (II) Vitamin A (Retinol) in Milk-Based Infant Formula Liquid Chromatographic Method (1994, CAC).

The second method of this standard corresponding to AOAC.974.29 (IV) Colorimetry -- Special foods Vitamin A in foods (1994, CAC).

This standard is not equivalent to AOAC.992.06 (II) and AOAC.974.29 (IV).

This Standard will replace GB/T 12388-1990.

Comparison with GB/T 12388-1990, main changes of this Standard are as follows:

- Changed the Chinese title as *Determination of retinol and tocopherol 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*.

Annex A of this Standard is informative annex.

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, Li Jing and Wang Guodong.

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

Determination of retinol and tocopherol in foods

1 Scope

This standard specifies the determination of retinol and tocopherol in the foods.

This standard is applicable to the determination of retinol and tocopherol in the foods.

Detection limit of this standard is respectively: V_A : 0.8ng; α -E:91.8ng; γ -E:36.6ng; δ -E:20.6ng.

Method I High performance liquid chromatography

2 Principle

After saponification extracting processing of the retinol and tocopherol in the sample, extract it from the unsaponifiable part to organic solvent. Use high performance liquid chromatography C_{18} reversed-phase column to separate retinol and tocopherol. Use ultraviolet detector for detection and use internal standard method for determination.

3 Reagents

3.1 Anhydrous ether: Not containing the superoxide.

3.1.1 Superoxide inspection method; add 1mL 10% potassium iodide solution to 5mL diethyl ether, and shake it. If there is superoxide, then release free iodine. Water layer becomes yellow. Or add 4 drops of 0.5% starch solution, the water layer becomes blue. The diethyl ether can be used after processing.

3.1.2 Method to remove superoxide: When evaporate the diethyl ether again, add small amount of pure iron wire or iron powder in the bottle. Discard 10% of the initial distillation liquid and 10% of the residual distillation liquid.

3.2 Absolute ethyl alcohol: There should be no aldehydes.

3.2.1 Inspection method: Absorb 2mL Tollen's reagent and put it in test tube. Add small amount of ethanol. Shake it. Then add sodium hydroxide solution. Heat it, and then cool it. If there is silver mirror reaction, it means there is aldehyde in the ethanol.

完整版本请在线下单

或咨询：

TEL： 400-678-1309

QQ： 19315219

Email：info@lancarver.com

<http://www.lancarver.com>

对公账户：

单位名称：北京文心雕语翻译有限公司

开户行：中国工商银行北京清河镇支行

账 号：0200 1486 0900 0006 131

支付宝账户：info@lancarver.com

注：付款成功后，请预留电邮，完整版本将在一个工作日内通过电子 PDF 或 Word 形式发送至您的预留邮箱，如需索取发票，下单成功后的三个工作日内安排开具并寄出，预祝合作愉快！