



NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC
OF CHINA

中华人民共和国国家标准

GB 5413.35-2010

National food safety standard
Determination of β -carotene in foods for infants and
young children, milk and milk products

食品安全国家标准

婴幼儿食品和乳品中 β -胡萝卜素的测定

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Foreword

In this present National Standard, AOAC 2005.7, *β -carotene in Supplement and Raw material*, is referred to partially.

Annex A of this present National Standard is normative, and Annex B is informative.

This present National Standard is released for the first time.

National food safety standard

Determination of β -carotene in foods for infants and young children, milk and milk products

1. Scope

This present National Standard specifies the method for determination of β -carotene in foods and milk products for infant and young children.

This present National Standard is applicable to the determination of carotene level in foods for infant and young children and milk products.

2. Normative references:

The following standard contains provisions which, through reference in this text, constitute provisions of this present standard. As for the dated references, all the amendments or revisions after them except the corrigenda are not applicable to this present standard. As for the references that are not dated, their most recent editions are applicable to this present national standard.

GB/T 6682 Water for analytical laboratory use – Specification and test methods

3. Principle

After saponification, the β carotene in sample is turned to free form, which can be extracted by petroleum ether and determined by High Performance Liquid Chromatography; the external standard method is used for quantification.

4. Reagents and solvents

Unless otherwise specified, the reagents used are analytically pure or higher; water used in the analysis should comply with the requirement on Grade I water in GB/T 6682.

- 4.1 α - amylase: Enzyme activity ≥ 1.5 U/mg.
- 4.2 Anhydrous sodium sulfate.
- 4.3 Ascorbic acid.
- 4.4 Petroleum ether: Boiling range: 30 ° ~ 60 °.
- 4.5 Methyl alcohol: Chromatographically pure.
- 4.6 Acetonitrile: Chromatographically pure.
- 4.7 Trichloromethane: Chromatographically pure.
- 4.8 Normal hexane: Chromatographically pure.
- 4.9 Alcohol: 95% volume fraction
- 4.10 Water solution of potassium hydroxide: 250 g of solid potassium hydroxide was weighed, dissolved with 200 mL of water. Prepared before use.
- 4.11 β carotene standard product.
- 4.12 β carotene standard solution.

4.12.1 β carotene standard stock solution (500 $\mu\text{g/mL}$) :

Weigh 50.0 mg of standard substance (4.11) of β carotene accurately, dissolve it in a 100mL brown volumetric flask with normal hexane (4.8), and dilute to volume.

Note: It should be stored by refrigeration below the temperature of -10 °C, and the shelf life should not be over 3 months. Before use, the standard stock solution should be calibrated, of which the operation is listed in Annex A.

4.12.2 β carotene standard intermediate solution (100 $\mu\text{g/mL}$) :

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