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

GB/T 5413.26-1997

Replacing GB/T 5413.26-1997

**National food safety standard Determination of taurine in foods
for infants and young children, milk and milk products**
(English Translation)

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Table of Contents

Foreword	
1 Scope	
2 Normative references	
4 Reagents and materials	
5 Apparatus	
6 Step, Analysis	
6.1 Sample	
6.2 Determination	
7 Expression analysis	
7.1 Calculation Results	
8 Precision	
10 Reagents and materials	
10.12 Precipitant	
10.17 Taurine standard solution	
11 Instruments and equipment	
12 Procedure	
12.2 Determination	
13 Analysis results presentation	
14 Precision	

Foreword

This standard is equivalent to the second law of international Society of Analysts (AOAC) AOAC 997.05 Taurine in powdered milk and powdered infant formulae.

This standard replaces GB/T 5413.26-1997 "Milk powder and infant foods - Determination of taurine." this standard compared with GB/T 5413.26-1997, main changes are as follows.

- After the original standard methods OPA High Performance Liquid Chromatography for the first statutory law;
- Increased chloride former single-column derivatization HPLC method for the second;
- The structure of the original standard was revised.
- External standard method using the standard curve;

- Increase Appendix A standard liquid chromatogram.

Appendix A of this standard is an informative annex.

This standard replaces the standards previously issued as follows.

--GB 5413-1985, GB/T 5413.26-1997.

National Food Safety Standard Determination of infant foods and dairy products taurine

1 Scope

This standard specifies the method for determination of infant foods and dairy taurine.

This standard applies to the determination of infant foods and dairy products taurine.

2 Normative references

The standard file referenced in the application of this standard is essential. For dated references, only the edition date of the note Apply to this standard. For undated references, the latest edition (including any amendments) applies to this standard.

After the first column derivatization OPA method Principle 3 Phosphoric acid partial sample was dissolved by ultrasonic oscillation extraction and centrifugation, microfiltration membrane filtration column separated by sodium ions, and O-phthalaldehyde (OPA) derivatization reactions, detection, external standard fluorescence detector.

4 Reagents and materials

Unless otherwise specified, the reagents were of analytical grade water as a water GB/T 6682 regulations.

4.1

Partial phosphoric acid (HPO_3).

4.2

trisodium citrate ($\text{Na}_3\text{C}_6\text{H}_5\text{O}_7 \cdot 2\text{H}_2\text{O}$).

4.3

Phenol ($\text{C}_6\text{H}_6\text{O}$).

4.4

nitric acid (HNO_3).

4.5

methanol (CH_3OH). chromatography.

4.6

boric acid (H_3BO_3).

4.7

Potassium hydroxide (KOH).

4.8

PHTHALALDEHYDS ($\text{C}_8\text{H}_6\text{O}_2$) (OPA).

4.9 2-mercaptoethanol ($\text{C}_2\text{H}_6\text{OS}$).

4.10

Polyoxyethylene monolaurate ether (Brij-35).

Taurine 4.11 Standard. Purity $\geq 99\%$.

4.12

Partial phosphoric acid solution (10 g/L). Weigh 10.0 g metaphosphoric acid (4.1), dissolved in water and dilute to 1000 mL.

4.13

citrate buffer. Weigh 19.6 g trisodium citrate (4.2), add 950 mL of water dissolved in 1 mL of phenol (4.3), with Nitric acid (4.4) adjusted to pH 3.10 ~ 3.25, the 0.45 μm filter membrane.

4.14 - column Derivatization solvent (o-phthalaldehyde solution) 4.14.1 potassium borate solution (0.5 mol/L). Weigh 30.9 g of boric acid (4.6), 26.3 g of potassium hydroxide (4.7) dissolved in water and given Volume to 1000 mL.

4.14.2

PHTHALALDEHYDS derivative solution. Weigh 0.60 g PHTHALALDEHYDS (4.8), dissolved in 10 mL of methanol (4.5), add 0.5 mL 2- mercaptoethanol (4.9) and 0.35 g Brij-35 (4.10), with 0.5 mol/L of potassium borate solution (4.14.1) and dilute to 1000 mL, Through 0.45 μm membrane filter. Pro preparation before use.

Taurine 4.15 standard solution 4.15.1 taurine standard stock solution (1mg/mL). Weigh accurately 0.1000 g taurine standard (4.11), dissolved in water and constant volume to 100 mL. Stock solution can be stored for 7 days at 4 °C.

4.15.2

taurine standard working solution. taurine stock standard solution (4.15.1) diluted with water to prepare a series of standard solutions, standard series Concentration. 0,5,10,15,20 $\mu\text{g/mL}$. Pro preparation before use.

5 Apparatus

5.1

high performance liquid chromatography with fluorescence detector.

After 5.2 column reactor.

5.3

fluorescence derived solvent infusion pump.

5.4

ultrasonic oscillator.

5.5

pH meter. accuracy of 0.01.

5.6

Centrifuge. ≥ 5000 rpm rev/min.

5.7 0.45 μm microporous membrane.

5.8

Balance. a sense of the amount of 1mg, 0.1mg.

6.1 Sample

Accurately weighed solid sample 1 g ~ 5 g sample, the liquid sample 5 g ~ 20 g (accurate to 0.01g, the sample containing 5 μg of taurine above), Metaphosphoric acid solution plus 30 mL (4.12) was dissolved, shake it well and transferred to 100 mL volumetric flask; an ultrasonic oscillator oscillation 10 min ~ 15 min, removed after cooling to room temperature, add water to the mark; the sample solution at 5000 r/min centrifugation 10 min, the supernatant through 0.45 μm microporous membrane (5.7) filtered and the filtrate then take the middle to prepare for injection.

6.2.1 Reference chromatographic conditions

Column. Sodium dedicated amino acid analysis column (250 mm x 4.6 mm) or equivalent column.

Mobile phase. citrate buffer (4.13).

Mobile phase flow rate. 0.30 mL/min.

Fluorescence derived solvent flow rate. 0.30 mL/min.

Column temperature. 55 °C.