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

GB 5413.17-2010

Replacing GB/T 5413.17-1997

**National food safety standard -- Determination of pantothenic
acid in foods for infants and young children, milk and milk
products**

(English Translation)

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Foreword

This standard is equivalent to the first law of international analysts Institute (AOAC) 945.74 Pantothenic Acid in Vitamin Preparations.

This standard replaces GB/T 5413.17-1997 "infant formula milk powder and pantothenic acid determination." this standard compared with GB/T 5413.17-1997, the first major change in law as follows.

- Added tris buffer preparation methods;
- Determine the measurement wavelength;
- Added text description of the standard curve plotted.

The second major change in law as follows.

- Replacement of the column;
- Changed the mobile phase;
- Increasing the enzymatic treatment of starch-containing samples.

Appendix A of this standard is an informative annex.

This standard replaces the standards previously issued as follows.

--GB 5413-1985, GB/T 5413.17-1997.

National Food Safety Standard Infant food and dairy products Determination of pantothenic acid

1 Scope

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

This standard applies to infant food and dairy products Determination of pantothenic acid.

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.

The first method microbiological method Principle 3 Use of Lactobacillus (Lactobacillus plantarum) ATCC 8014 Dui specific pantothenic acid, pantothenic acid sample containing the growth in productivity Health acidity and the formation of the optical density to determine the content of pantothenic acid.

4 Reagents and materials

Unless otherwise specified, the reagents used in this method are analytical reagents water GB/T 6682 provisions of secondary water.

4.1 0.9% saline. 9.0 g sodium chloride are dissolved in 1000 mL of water, packed in a stoppered test tube, each tube 10 mL, 121 °C sterilization 15 min. Ready to once a week.

4.2

calcium pantothenate standard.

4.3

acetic acid solution (0.2 mol/L). draw 12 mL of glacial acetic acid diluted with water to 1000 mL.

4.4

toluene (C₇H₈).

4.5

sodium acetate solution (0.2 mol/L). 16.4 g of anhydrous sodium acetate was dissolved in water and diluted to 1000 mL.

4.6

strains. *Lactobacillus* (*Lactobacillus plantarum*) ATCC 8014.

4.7 Medium

4.7.1

Lactobacillus agar medium. light tryptone 15 g, yeast extract 5 g, glucose 10 g, tomato juice, 100 mL, potassium dihydrogen phosphate 2 g, polyethylene sorbitan monooleate 1 g, agar 10 g, add distilled water to 1000 mL, adjust pH to 6.8 ± 0.2 (20 °C ~ 25 °C).

4.7.2

Lactobacillus broth. light tryptone 15 g, yeast extract 5 g, glucose 10 g, tomato juice, 100 mL, potassium dihydrogen phosphate 2 g, polyethylene sorbitan monooleate 1 g, add distilled water to 1000 mL, adjust pH to 6.8 ± 0.2 (20 °C ~ 25 °C).

4.7.3

pantothenic acid measurement medium. Glucose 40 g, sodium acetate, 20 g, no vitamin acid hydrolysis of casein 10 g, dipotassium phosphate 1 g, Potassium dihydrogen phosphate 1 g, L- cystine 0.4 g, L- tryptophan 0.1 g, magnesium sulfate 0.4 g, sodium chloride 20 mg, ferrous sulfate 20 mg, sulfuric acid Manganese 20 mg, adenine sulfate 20 mg, guanine hydrochloride 20 mg, uracil, 20 mg, carotene, 400 µg, thiamin hydrochloride 200 µg, Biotin 0.8 µg, p- amino acid 200 µg, nicotinic acid 1 mg, pyridoxine hydrochloride

800 µg, polyethylene sorbitan monooleate 0.1 g, plus steamed Distilled water to 1000 mL, adjust pH to 6.7 ± 0.1 (20 °C ~ 25 °C).

4.8 Tris buffer solution. Weigh 24.2 g Trizma Base in the beaker, add 200 mL of water to dissolve.

4.9 hydrochloric acid (0.1 mol/L). draw 8.3 mL of hydrochloric acid, diluted with water to 1000 mL.

4.10 Standard solution

4.10.1

pantothenic acid stock standard solution (40 µg/mL). Weigh 45 mg ~ 55 mg calcium pantothenate standard (4.2), dissolved in 500 mL Distilled water, add 10 mL of acetic acid solution (4.3), added to 100 mL of sodium acetate (4.5), diluted with water to a precise concentration of calcium pantothenate 43.47 µg/mL (ie, pantothenic acid at a concentration of 40 µg/mL), add 0.5 mL of toluene (4.4) stored at 2 °C ~ 4 °C refrigerator shelf life of 4 Months.

4.10.2

pantothenic acid intermediate stock solution (1 µg/mL). 25 mL of stock standard solution (4.10.1), distilled water was added 500 mL, in acetic acid Solution 10 mL (4.3), sodium acetate 100 mL (4.5), and diluted with water to 1 L. Add 0.5 mL of toluene (4.4) stored in a refrigerator (2 °C ~ 4 °C), storage period of one month.

4.10.3

pantothenic acid working standard solution (10 ng/mL, 5 ng/mL). 5.0 mL twice withdrawing intermediate stock solution (4.10.2) were given water the volume to 500 mL and 1000 mL, prepared before use.

5 Apparatus

5.1

Spectrophotometer.

5.2

pH meter. accuracy of 0.01.

5.3

Vortex.

5.4

Balance. a sense of the amount of 0.1 mg.