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

GB/T 5413.15-1997

Replacing GB/T 5413.15-1997

**National food safety standard Determination of vitamin niacin
and niacinamide in foods for infants and young children, milk
and milk products**

(English Translation)

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Foreword

This standard is equivalent to the second law of international analysts Institute (AOAC) 944.13 Niacin and Niacinamide (Nicotinic Acid and Nicotinamide) in Vitamin Preparations.

This standard replaces GB/T 5413.15-1997 "infant formula milk powder and nicotinic acid and nicotinamide determination." the second method compared with the standard GB/T 5413.15-1997, main changes are as follows.

- Increasing the optical density determination;
- Added Determination of starch sample;
- To increase the standard curve drawing text description.

Appendix A of this standard is an informative annex.

This standard replaces the standard for the previous editions.

--GB 5413-1985, GB/T 5413.15-1997.

National Food Safety Standard Determination of infant foods and dairy products nicotinic acid and nicotinamide

1 Scope

This standard specifies the method for determination of infant foods and dairy products nicotinic acid and nicotinamide.

This standard applies to food and dairy products Determination of nicotinic acid and nicotinamide infants.

2 Normative documents

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 HPLC Principle 3 the sample was extracted with hot water, after acidic protein precipitation to C18 column, using a UV detector.

4 Reagents and materials

Unless otherwise specified, the reagents used in this method are analytically pure water GB/T 6682 provided a water.

4.1

Amylase. enzyme activity ≥ 1.5 U/mg.

4.2

hydrochloric acid.

4.3

sodium hydroxide.

4.4

hydrochloric acid (2.4 mol/L). accurate Pipette 10 mL of hydrochloric acid (4.2) in 50 mL volumetric flask, and water volume.

4.5

sodium hydroxide solution (2.5 mol/L). Weigh 5.0g of sodium hydroxide (4.3) in 50 mL volumetric flask, and water volume.

4.6

perchloric acid (HClO_4). volume fraction of 60%.

4.7

methanol (CH_4O). chromatography.

4.8

isopropanol ($\text{C}_3\text{H}_8\text{O}$). chromatography.

4.9

heptane sulfonate ($\text{C}_7\text{H}_{15}\text{NaO}_3\text{S}$). pure class distinctions.

4.10 Standard solution

4.10.1

Niacin and Niacinamide standard stock solution (1.0 mg/mL). Weigh nicotinic acid and nicotinamide standards for each 0.1 g (accurate to 0.0001 g), They were placed in 100 mL volumetric flask and dissolve to volume with water.

4.10.2

Niacin and Niacinamide intermediate standard solution (40 $\mu\text{g/mL}$). Imbibe respectively nicotinic acid and nicotinamide stock standard solution (4.10.1) 2 mL to 50 mL quantitative flask to volume with water. Pro preparation before use.

4.10.3

Niacin and Niacinamide standard series measured liquid. Imbibe nicotinic acid and nicotinamide mixed intermediate standard solution (4.10.2) 0.0, respectively mL, 1.0 mL,

2.0 mL, 5.0 mL, 10.0 mL, 50 mL volumetric flask to volume with water. The standard series of concentrations of 0.00 µg/mL, 0.80 µg/mL, 1.60 µg/mL, 4.00 µg/mL, 8.00 µg/mL. Preparation before use.

5 Apparatus

5.1

high performance liquid chromatography with UV detection.

5.2

pH meter. accuracy of 0.01.

5.3

ultrasonic oscillator.

5.4

Balance. a sense of the amount of 0.1 mg.

5.5

Incubator. 30 °C ~ 80 °C.

6.1 Pretreatment of the sample

6.1.1

starch-containing sample. Weigh mixed solid sample of about 5.0 g (accurate to 0.0001 g) was added about 25 mL 45 °C ~ 50 °C Water or mixed liquid sample weighed about 20.0 g (accurate to 0.0001 g) in 150 mL Erlenmeyer flask, then add about 0.5 g of starch Enzyme (4.1), after shaking the Erlenmeyer flask nitrogen, covered with cork and placed in culture for about 30 min in the incubator of 50 °C ~ 60 °C, remove the cold to room temperature.

6.1.2

No Starch. Weigh mixed solid sample of about 5.0 g (accurate to 0.0001 g) was added about 25 mL 45 °C ~ 50 °C Water or mixed liquid sample weighed about 20.0 g (accurate to 0.0001 g) in 150 mL conical flask, shake and let stand 5 min ~ 10 min, fully dissolved, and cooled to room temperature.

6.1.3

Extraction. The above conical flask placed in an ultrasonic oscillator oscillation about 10 min.

6.1.4

sedimentation and volume. to be a sample solution was cooled to room temperature, with hydrochloric acid (4.4) adjusting the pH of the sample solution to 1.7 ± 0.1 , for about After 2 min, then sodium hydroxide solution (4.5) to adjust the pH value of the sample solution to