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

GB/T 5413.11-1997

Replacing GB/T 5413.11-1997

**National food safety standard Determination of vitamin B1 in
foods for infants and young children, milk and milk products
(English Translation)**

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Foreword

Appendix A of this standard is a normative appendix.

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National Food Safety Standard Food additives glycine (an amino acid)

1 Scope

This standard applies to dissolved by an acid amide obtained in the process of industrial amino acid purified water, active carbon and other processes recrystallization Crystal prepared food additive glycine (an amino acid).

2 Normative references

The standard file referenced in the application of this standard is essential. For cited documents with dates, only the date of Version applies to this standard. For undated references, the latest edition (including any amendments) applies to this standard.

3 Formula, relative molecular mass and structural formula

Formula 3.1

C₂H₅NO₂

3.2 Formula

NH₂-CH₂-C-OH

3.3 Relative molecular mass

75.07 (according to 2007 international relative atomic mass)

4 Technical Requirements

4.1

Sensory requirements. comply with Table 1.

Table 1 Sensory requirements

Project requires test methods Color White take appropriate laboratory sample, placed in a clean, dry white porcelain dish, in natural light, visually observed. Organizational status crystalline granule or crystalline powder

4.2

Physical indicators. to comply with Table 2.

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Table 2. Physical and chemical indicators

Item Index Test Method Amino acid (dry basis), w /% 98.5 ~ 101.5 Appendix A A.4 Chloride (Cl dollars), w /% ≤ 0.010 A.5 in Appendix A Arsenic (As)/(mg/kg) ≤ 1 Appendix A A.6 Heavy metals (Pb)/(mg/kg) ≤ 10 Appendix A A.7 Loss on drying, w /% ≤ 0.20 Appendix A A.8 Residue on ignition, w /% ≤ 0.10 A.9 in Appendix A Clarity test by test A.10 in Appendix A pH (50g/L solution) 5.5 to 7.0 Appendix A A.11 GB 25542-2010 Appendix A (Normative) Testing method A.1 Warning Some test procedures prescribed test method can lead to dangerous situations. The operator shall take appropriate safety and health practices.

A.2 General Provisions Unless otherwise indicated in the analysis using only confirm three analytical grade reagents and water GB/T 6682-2008 stipulated.

Test Methods standard titration solution, when measured impurity standard solution, preparations and products, with no other requirements noted, According to GB/T 601, the provisions of GB/T 602 and GB/T 603 of the preparation.

A.3 Identification Test A.3.1 Reagents and materials A.3.1.1 indane trione solution. 1g/L.

A.3.1.2 hydrochloric acid solution. 13.

A.3.1.3 sodium nitrite solution. 100g/L.

A.3.1.4 chromotropic acid solution. Weigh 0.5g chromotropic acid, add 50mL sulfuric acid solution (21) Shake mixed, centrifuged, the supernatant using. this Solution preparation required before use.

A.3.2 Analysis step

A.3.2.1 indane trione test Weigh about 0.1g laboratory samples, accurate to 0.01g, was dissolved in 100mL of water of this solution 5mL, adding 1mL indane trione solution, add Heat to boiling after about 3min was purple.

A.3.2.2 nitroso test Weigh about 1g laboratory samples, accurate to 0.01 g, was dissolved in 10mL of water of this solution 5mL, add 5 drops of hydrochloric acid solution and 1mL Freshly prepared solution of sodium nitrite, a colorless gas. The solution 5 drops into the test tube, after boiling on a water bath evaporated, cooling, Add 5 drops to 6 drops of chromotropic acid solution to the residue heated in a water bath after 10min ~ 30min was dark purple.

A.4 Determination of amino acid A.4.1 Method summary Sample formic acid as a co-solvent, glacial acetic acid as solvent, crystal violet as indicator, titration with perchloric acid standard solution titration, according to Consumption volume perchloric acid standard titration solution content is calculated amino acid.

A.4.2 Reagents and materials A.4.2.1 glacial acetic acid.

A.4.2.2 anhydrous formic acid.

A.4.2.3 perchloric acid standard titration solution. $c(\text{HClO}_4) = 0.1 \text{ mol/L}$.

A.4.2.4 crystal violet indicator solution. 2g/L.

A.4.3 Analysis step

A.4.3.1 Weigh about 0.15g A.8.1 dried substance A, accurate to 0.0001g, placed in 250mL dry conical flask, add about 1mL GB 25542-2010 Anhydrous formic acid dissolved, add 30mL glacial acetic acid, add 2 drops of crystal violet indicator solution, titration with perchloric acid standard solution titration until the solution changed from purple Bright blue-green endpoint.

A.4.3.2 measured at the same time, according to the same procedure and the determination of the sample without using the same amount of reagent blank test solution.

A.4.4 Calculation Results Amino acid (dry basis) of the mass fraction w_1 , expressed in%, according to formula (A.1) Calculated.

)(twenty one

$c_{MVW\%}$ (A.1)

Where.

V_1 -- sample consumption of perchloric acid standard titration solution (A.4.2.3) the value of the volume, in milliliters (mL);

V_2 -- blank consumption value perchloric acid standard titration solution volume in milliliters

(mL);

Accurate c -- perchloric acid standard titration solution concentration value in units of moles per liter (mol/L);

m -- sample mass value in grams (g);

Numerical M -- amino acid molar mass in grams per mole (g/mol) ($M = 75.07$).

The arithmetic average of the results of two parallel determination for reporting results. Two parallel determination results is not more than 0.3% absolute difference.

A.5 Determination of chloride A.5.1 Reagents and materials A.5.1.1 nitric acid solution. 19.

A.5.1.2 silver nitrate solution. 17g/L.

A.5.1.3 chloride (Cl) standard solution. 0.1mg/mL.

A.5.2 Analysis step

Weigh about 1.0g laboratory samples, accurate to 0.01g, placed in 50mL colorimetric tube, add water to dissolve 30mL, add 6mL nitric acid solution, add 50mL of water to the sample solution. Another one colorimetric tube, add 1mL ± 0.02 mL chloride (Cl) standard solution, add 30mL water, add 6mL Nitric acid solution, add water to 50mL with standard turbidity solution. The sample solution and standard turbidity solution 1mL each added silver nitrate solution, fully Mixing, avoid direct sunlight, place 5min, on a black background side or axial observation, turbidity of the sample solution is not greater than standard Nephelometric turbidity quasi-liquid.

A.6 Determination of Arsenic According to GB/T 5009.76 Gutzeit method. When said determination to take about 1.0g laboratory samples, accurate to 0.01g. Limited feature standard solution System. pipette Pipette 1mL ± 0.02 mL arsenic standard solution (arsenic 1.0 μ g), and treated in the same sample at the same time.

A.7 Determination of Heavy Metals A.7.1 Reagents and materials A.7.1.1 sodium hydroxide solution. 43g/L.

A.7.1.2 sodium sulfide solution. 100g/L, before the need to use this solution formulation.

A.7.1.3 Lead (Pb) standard solution. 0.01mg/mL.

A.7.2 Analysis step

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Weigh about 1.0g laboratory samples, accurate to 0.01g, placed in 25mL colorimetric tube, add 5mL sodium hydroxide solution, dissolved in water and dilute Diluted to 25mL, add 5 drops of sodium sulfide solution, shake 2min, was the color can not be deeper than the standard. Standard draw 1mL ± 0.02 mL Lead (Pb) limit standard solution (lead 0.01mg), and treated in the same sample at the same time.