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

GB 19645-2010

Replacing GB 19645-2005; GB 5408.1-1999 ial

National food safety standard -- Pasteurized milk

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(English Translation)

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Table of Contents

Foreword
1 Scope
2 Normative references
3 Formula, relative molecular mass and structural formula
3.2 Formula
3.3 Relative molecular mass
4 Technical Requirements

Foreword

Appendix A of this standard is a normative appendix.

GB 25543-2010

National Food Safety Standard Food additives L- alanine

1 Scope

This standard applies to L- aspartic acid as raw material, obtained by enzymatic production of food additives L- alanine.

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

C₃H₇NO₂

3.3 Relative molecular mass

89.09 (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, visual observation, smelling the odor.

Organization state crystal or crystalline powder

4.2

Physical indicators. to comply with Table 2.

GB 25543-2010

Table 2. Physical and chemical indicators

Item Index Test Method L- alanine (dry basis), w /% 98.5 ~ 101.5 Appendix A A.4 Loss on drying, w /% ≤ 0.20 Appendix A A.5 pH (50g/L solution) 5.7 ~ 6.7 in Appendix A A.6 Arsenic (As)/(mg/kg) ≤ 1 Appendix A A.7 Heavy metals (Pb)/(mg/kg) ≤ 10 Appendix A A.8 Residue on ignition, w /% ≤ 0.20 A.9 in Appendix A Specific rotation α_D^{20} (20 °C, D)/[(°) · dm² · kg⁻¹] 13.5 ~ 15.5 Appendix A A.10 GB 25543-2010 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 potassium permanganate.

A.3.1.2 indane trione solution. 20g/L. Weigh 20.0g indane trione, soluble in water, dilute to 1000mL.

A.3.1.3 sulfuric acid solution. 130.

A.3.2 Analysis step

A.3.2.1 indane trione test Weigh about 1g laboratory samples, accurate to 0.1g, dissolved in 1000mL of water of this solution 5mL, adding 1mL indane trione dissolved Was heated to boiling, after about 3min was purple.

A.3.2.2 oxidation test Weigh about 0.2g laboratory samples were dissolved in 10mL sulfuric acid solution was added 0.1g of potassium permanganate, boiled, stimulate a strong odor

Acetaldehyde.

Determination A.4 L- phenylalanine content 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 L- alanine.

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 0.2g A.5 of dried A, accurate to 0.0001g, placed in 250mL dry conical flask, add 3mL no Aqueous formic acid dissolved, add 50mL glacial acetic acid, add 2 drops of crystal violet indicator solution, titration with perchloric acid standard solution titration until the solution changed from blue A blue-green endpoint.

GB 25543-2010

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 Experience.

A.4.4 Calculation Results L- alanine ($\text{C}_3\text{H}_7\text{NO}_2$) mass fraction w_1 , expressed in%, according to formula (A.1) Calculated.

)(twenty one

$\text{cMVVw\% (A.1)}$

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 perchloric acid standard titration solution (A.4.2.3) the value of the 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);

M - L- alanine numerical molar mass in grams per mole (g/mol) ($M = 89.09$).

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 loss on drying According to GB/T 6284 carried out. Measured, weighed 1g ~ 2g laboratory samples, accurate to 0.0001g. Take two parallel determination results the arithmetic average of the measurement results, the results of two parallel determination of the absolute difference is not more than 0.03%. The remaining portion was dried (this is the dry Dry matter A) used in the determination of L- alanine.

A.6 pH measurement of According to GB/T 9724 carried out. Measured, weighed about 5g laboratory samples, accurate to 0.01g, add about 20mL of water-soluble carbon dioxide-free Solution and diluted to 100mL after measurement.

A.7 Determination of Arsenic According to GB/T 5009.76 Gutzeit method. It said measured taking about 1g laboratory samples, accurate to 0.01g. Limited standard solution preparation.

Pipette Pipette 1.00mL limit arsenic standard solution (arsenic 0.001mg), and treated in the same sample at the same time.

A.8 Determination of Heavy Metals A.8.1 Reagents and materials A.8.1.1 thioacetamide solution. Weigh thioacetamide about 4g, accurate to 0.1g, dissolved in 100mL of water, placed in the refrigerator warranty Deposit. Immediately prior to taking this solution 1.0mL was added in advance by the sodium hydroxide solution (40g/L) 15mL, 5mL water and glycerol mixture consisting of 20mL Combined solution 5mL, placed 20s, immediately cooled using a water bath heated.

A.8.1.2 carbon dioxide-free water.

A.8.1.3 ammonium acetate buffer, pH = 3.5. Weigh 25.0g of ammonium acetate, 25mL dissolved in water, add 45mL 6mol/L hydrochloric acid, Adjusted with dilute hydrochloric acid or dilute aqueous ammonia pH = 3.5 was diluted with water to 100mL.

A.8.1.4 Lead (Pb) standard solution. 1μg/mL. This solution was prepared just before use.

A.8.2 Analysis step

Weigh about 10 g laboratory samples, accurate to 0.01g, with about 60mL no carbon dioxide dissolved in water and diluted to 100mL, is like GB 25543-2010 Solution. Draw the sample solution 12mL, 25mL stoppered placed colorimetric tube, the tube is A. Absorb lead standard solution 10mL and 2mL the sample was placed in 25mL colorimetric tube with a stopper, shake, is the B tube (standard). Absorb carbon dioxide-free water and 10mL 2mL sample Solution set 25mL colorimetric tube with a stopper, shake, is the C tube (blank). In A, B, C the tube, each 2mL was added ammonium acetate buffer Red solution, shake, respectively dropping 1.2mL acetyl ammonium thiosulfate solution, rapid mixing.

With respect to the tube C, B show a light brown pipe. 2min, the color should not be deeper than the pipe A B tube.