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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB 17779-2010

Replacing GB 17779-1999

The national food safety standards of food additives -- L-threonate

食品添加剂 L-苏糖酸钙

(English Translation)

Issued on: December 21, 2010 **Implemented on: February 21, 2011**

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Foreword

This standard replaces GB 17779-1999 "Food Additive L- threonate." this standard compared with GB 17779-1999, the main changes are as follows.

- Remove heavy metal indicators and test methods, increasing the lead indicators and test methods;

- Indicators of arsenic from the 0.3mg/kg revised to 3mg/kg;

- Added chloride indicators and test methods.

The Standard Annexes A and B are normative appendix.

This standard replaces the standards previously issued as follows.

--GB 17779-1999.

National Food Safety Standard Food additives L- threonate

1 Scope

This standard applies to calcium and ascorbic acid as the main raw materials obtained food additive L- threonate.

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.

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3.1 Chemical Name

2R, 3S-2,3,4- trihydroxybutylthio calcium (2. 1) Formula 3.2 C8H14CaO10

3.3 Formula

COO-

CH2OH

HO H

H OH

Ca2

3.4 Relative molecular mass

310.27 (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 sample is placed in a clean, dry test tube, self Under natural light, observe the color and texture, smell the smell. Odour odorless Organization state fine granular powder

4.2

Physical indicators. to comply with Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method L- threonate (C8H14CaO, dry basis), w /% >= 98.00 Appendix A A.4 Specific rotation alpham (20 °C, D)/[(°) · dm2 · kg-1] 13.0 to 16.0 A.5 in Appendix A pH (saturated solution) 6.0 ~ 8.0 GB/T 9724 Loss on drying, w /% <= 1.5 A.6 in Appendix A Lead (Pb)/(mg/kg) <= 2 GB 5009.12 Arsenic (As)/(mg/kg) <= 3 GB/T 5009.76 Chloride (Cl dollars), w /% <= 0.5 Appendix A A.7 Appendix A (Normative) Testing method A.1 Safety Tips Reagents The standard test methods used for toxic or corrosive, according to the relevant provisions of the operation, should be used with caution.

If splashed on the skin should immediately wash with water, severe cases should be treated immediately. When using a volatile acid, to be carried out in a fume hood.

A.2 General Provisions the reagents used in this standard, unless otherwise noted, only in

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the analysis confirmed analytically pure reagents and GB/T 6682-2008 in Regulation Given three water.

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

A.3 Identification Test A.3.1 Reagents and materials A.3.1.1 hydrochloric acid.

A.3.1.2 hydrochloric acid solution. 13.

A.3.1.3 ammonium oxalate test solution. 35 g/L.

A.3.1.4 ferric chloride solution. 90 g/L (using now).

A.3.1.5 methyl red test solution. 0.5 g/L.

A.3.2 Identification Test A.3.2.1 ammonium oxalate precipitation test A.3.2.1.1 principle of the method Calcium and oxalate reaction of calcium oxalate precipitation, calcium oxalate is insoluble in acetic acid, but can be dissolved in hydrochloric acid.

A.3.2.1.2 analysis step Weigh approximately 1 g laboratory samples, accurate to 0.01 g, was dissolved in 50 mL of water, add 2 drops of methyl red indicator solution, a solution of hydrochloric acid to just Acid; plus ammonium oxalate solution, namely a white precipitate; separating the precipitate insoluble in acetic acid, but can be dissolved in hydrochloric acid.

A.3.2.2 Identification of ferric chloride A.3.2.2.1 principle of the method L- threonate ferric chloride solution reacts with the yellow-green complex.

A.3.2.2.2 analysis step Weigh about 0.1 g laboratory samples, accurate to 0.01 g, 5 mL of water dissolved, add 1 drop of ferric chloride solution, yellow-green.

A.3.2.3 infrared absorption spectrum identification IR spectrum (spectrum see Appendix B), characterized by a peak wave number of 3100 cm-1,1599 cm-1,1433 cm-1,1383 cm-1, 1262 cm-1,1223 cm-1,1022 cm-1.

Determination A.4 L- calcium Su sugar A.4.1 principle of the method Under alkaline conditions, calcium purpurin as indicator, with disodium EDTA standard titration droplet given sample (in terms of dry goods) Aqueous solution, based on the amount of diethylamine edetate standard titration solution to C8H14CaO10 terms of content.

A.4.2 Reagents and materials A.4.2.1 sodium hydroxide solution. c (NaOH) = 1 mol/L.

A.4.2.2 disodium EDTA standard titration solution. c (EDTA) = 0.05 mol/L.

A.4.2.3 purpurin calcium indicator. take 0.1 g calcium purpurin, add 10 g of anhydrous sodium sulfate, grinding uniform.

A.4.3 Analysis step

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Weigh about 0.48 g laboratory samples, accurate to 0.000 1 g, add 100 mL of water, heat gently to dissolve, to room temperature, add 15 mL hydroxide Sodium hydroxide solution, 0.1 g of calcium purpurin indicator, disodium edetate standard titration solution titrated to the solution from purple into pure blue.

Measured at the same time, according to the same procedure and determination, do not add the same number of laboratory samples and reagent blank test solution.

A.4.4 Calculation Results L- threonate (in C8H14CaO10 meter) mass fraction w1, expressed in%, according to formula (A.1) Calculated.

() 100%

(1) 1000

VV c Mw

- x x = xx - x (A.1) where.

V - laboratory sample consumption disodium EDTA standard titration solution (A.4.2.2) the value of the volume, in milliliters (mL);

0V - blank test consumption diethylamine edetate standard titration solution (A.4.2.2) the value of the volume, in milliliters (mL);

c - accurate disodium edetate standard titration solution concentration value in units of moles per liter (mol/L);

m - Numerical laboratory sample mass, in grams (g);

2w --A.6 quality L- threonate Loss on drying measured score values expressed in%;

Numerical M --L- threonate molar mass in grams per mole (g/mol) (M = 310.27).

The arithmetic mean of the measurement results for the two measurement results, the absolute difference between the two measurements is not more than 0.2%.

A.5 Determination of specific rotation A.5.1 Analysis step After Weigh about 1 g laboratory samples, accurate to 0.000 1 g, add water, slightly dissolved by heating to room temperature, moved to 100 mL volumetric flask, Diluted with water to the mark, shake, according to other methods GB/T 613-2007 provisions were.

A.5.2 Calculation Results Specific rotation alpham (20 °C, D) value to (°) · dm2 · kg-1 according to formula (A.2) Calculated.

Where.

alpha - measured angle of rotation, in degrees (°);

l - the length of the optical tube unit decimeter (dm);

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