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

GB 29940-2013

Food additive -- Stannous citrate, disodium

食品添加剂 柠檬酸亚锡二钠

(English Translation)

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Table of Contents

- 1 Scope
- 2 Molecular formula and relative molecular mass
- 2.2 Relative molecular mass
- 3 Technical requirements
- 3.1 Sensory requirements
- 3.2 Physical and Chemical Indicators

1 Scope

This standard applies to citric acid, stannous chloride, sodium hydroxide as raw materials processed prepared food additive citric acid disodium stannous.

2 Molecular formula and relative molecular mass

Formula 2.1

$C_6H_6O_8SnNa_2$

2.2 Relative molecular mass

370.80 (according to 2007 international relative atomic mass)

3.1 Sensory requirements

Sensory requirements shall comply with the requirements of Table 1.

Table 1 Sensory requirements

Project requires test methods Colorless or white color proper amount of sample is placed within the white porcelain plate, under natural light, to observe the color Chak and Status crystal or powder

3.2 Physical and Chemical Indicators

Physical and chemical indicators should be consistent with the provisions of Table 2.

Table 2. Physical and chemical indicators

Item Index Test Method Stannous (the Sn_2) content, w /% ≥ 29.0 Appendix A A.3 pH (10g/L solution) 5.0 ~ 7.0 GB/T 9724 Water-insoluble, w /% ≤ 0.05 Appendix A A.4 Total arsenic (As)/(mg/kg) ≤ 2 GB/T 5009.11 Lead (Pb)/(mg/kg) ≤ 3 GB 5009.12 Appendix A

Testing method A.1 General Provisions Unless otherwise specified in this standard, the use of analytical reagent purity should be more than the standard titration solution, standard solution for measuring impurities, Preparations and products, should be GB/T 601, GB/T 602, the provisions of the preparation of GB/T 603, the test water should be consistent with GB/T 6682-2008 in three water Provisions. Solution was used in the tests did not indicate what is formulated with solvent, it refers to an aqueous solution.

A.2 Identification Test A.2.1 Reagents and materials A.2.1.1 hydrochloric acid solution. 5%.

A.2.1.2 ammonium phosphomolybdate paper. Weigh 1 g ammonium phosphomolybdate with 10 mL of sodium hydroxide solution (100 g/L) was dissolved. The ash-free filter paper placed in the solution After the soak, remove the dark that was dry.

A.2.1.3 pyridine - acetic anhydride solution. 31.

A.2.2 discrimination step A.2.2.1 take platinum wire, with hydrochloric acid solution after wet, dipped into the sample, in a colorless flame combustion, flame appears yellow.

A.2.2.2 Weigh 1 g sample was dissolved in 10 mL hydrochloric acid solution to prepare a 10% solution of the sample, take 1 drop of the sample solution, drop in phosphorus molybdate on paper, blue strip should be obvious.

A.2.2.3 Weigh 1 g sample was dissolved in 10 mL of water to prepare a sample solution 10%, 1 mL of sample solution, add 5 mL of pyridine - acetic anhydride Solution, shake, that is, the solution was yellow to red or purple.

A.3 Determination of stannous (the Sn²⁺) Content A.3.1 Method summary in acidic medium with starch as indicator, titrate with potassium iodate titration of the sample solution standard, a slight excess of potassium iodate in an acid solution Immediately converted into the free iodine, free iodine starch that is the case turns blue indicate the end. Stannous content determined in accordance with the consumption of potassium iodate standard titration solution.

A.3.2 Reagents and materials A.3.2.1 hydrochloric acid solution. 20%.

A.3.2.2 starch indicator solution. 10 g/L.

A.3.2.3 potassium iodate standard titration solution. $c(\text{KIO}_3) = 0.1 \text{ mol/L}$.

A.3.3 Analysis step

Weigh 0.7 g samples, accurate to 0.000 1 g, placed in 250 mL stoppered Erlenmeyer flask, add 25 mL of water and 5 mL of hydrochloric acid solution, shake, plus After the 3 mL of starch indicator solution, titration solution was immediately titrated with standard potassium iodate to the solution from colorless to blue, it is the end point of titration.

A.3.4 Calculation Results Stannous (Sn²⁺) content mass fraction w_1 according to formula (A.1) Calculated.

0210001 xxx

xx= m

McVw (A.1)

Where.

Volume V-- consume potassium iodate titration standard solution, in milliliters (mL);

C-- concentration of potassium iodate standard titration solution, expressed in moles per liter (mol/L);

M-- tin molar mass in grams per mole (g/mol) [M (Sn) = 118.71];

Quality m-- sample in grams (g);

1000-- conversion factor;

2-- conversion factor.

The results parallel arithmetic mean of the measurement results shall prevail. Two independent determination results obtained under the repeatability condition of absolute difference is not Greater than 0.2%.

A.4 Determination of insoluble matter A.4.1 Instruments and Equipment A.4.1.1 sand core glass crucible. filter plate pore size of 3 μm ~ 4 μm .

A.4.1.2 electric oven. 105 $^{\circ}\text{C} \pm 2^{\circ}\text{C}$.

A.4.2 Analysis step

Weigh about 4 g samples, accurate to 0.01 g, placed in 400 mL beaker, add 100 mL of hot water, dissolved in 105 $^{\circ}\text{C} \pm 2^{\circ}\text{C}$ in advance for use in electricity Heat oven temperature drying to constant weight of the sand core glass crucible filtration with 200 mL of hot water 4 times the wash water insolubles. The glass sand core crucible together with water Insolubles were placed in 105 $^{\circ}\text{C} \pm 2^{\circ}\text{C}$ electric oven, and drying to constant weight.

A.4.3 Calculation Results Water insoluble mass fraction w₂ according to formula (A.2) Calculated.

0212 x-= m

mmw (A.2)

Where.

Quality m₁-- water insoluble and glass sand core crucible in grams (g);

M₂-- quality glass sand core crucible in grams (g);

Quality m-- sample in grams (g).

The results parallel arithmetic mean of the measurement results shall prevail. Two independent determination results obtained under the repeatability condition of absolute difference is not More than 10% of the arithmetic mean.