



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

GB 1886.107-2015

**National Food Safety Standard -- Food Additives -- Sodium
citrate**

食品安全国家标准 食品添加剂 柠檬酸一钠

(English Translation)

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Table of Contents

- 1 Scope
- 2 Chemical name, molecular formula and relative molecular mass
 - 2.1 Chemical Name
 - 2.3 Relative molecular mass
- 3 Technical requirements
 - 3.1 Sensory requirements
 - 3.2 Physical and Chemical Indicators

1 Scope

This standard applies to food additive monosodium citrate.

2.1 Chemical Name

2-hydroxy-1,2,3-tricarboxylic acid sodium salt -2-Formula 2.2 $C_6H_7NaO_7$

2.3 Relative molecular mass

214.11 (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 Color White State crystal or crystalline powder Odour odorless Take the right amount of sample is placed in a clean, dry white porcelain dish, self However, the color and light to observe the state and smell the odor

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 Sodium citrate ($C_6H_7NaO_7$) content (dry basis Meter), w /% 99.0 to 101.0 Appendix A A.3 TABLE 2 (cont.) Item Index Test Method Loss on drying, w /% ≤ 0.4 Appendix A A.4 Oxalate by test A.5 in Appendix A Lead (Pb)/(mg/kg) ≤ 2.0 GB 5009.12 Appendix A Testing method A.1 General Provisions this standard reagents and water in the

absence of other specified requirements, refer to the three water analytical reagent and GB/T 6682 regulations. test in the standard titration solution, impurity measurement standard solution, preparations and products, did not indicate when the other requirements, according to GB/T 601, GB/T 602 and GB/T 603 provisions prepared. 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 ethanol.

A.2.1.2 pyridine.

A.2.1.3 acetic anhydride.

A.2.1.4 hydrochloric acid solution (11).

A.2.1.5 cobalt acetate - uranyl solution. Weigh 40g uranyl acetate, acetic acid and added 28.6mL amount of water, warmed to dissolve and dilute with water Diluted to 500mL of solution A. The other weighed 200g cobalt acetate dissolved in 28.6mL of glacial acetic acid and the amount of water, and diluted with water to 500mL as a solution B. In the case of keeping warm, the solution A was mixed with solution B, was cooled to room temperature, allowed to stand for 2h, filtered and set aside.

A.2.2 Identification method A.2.2.1 solubility Soluble in water, almost insoluble in alcohol.

A.2.2.2 pH

100g/pH L of the sample solution is 3.4 to 3.8.

A.2.2.3 citrate test Take appropriate sample was added to a mixed solution of 15mL of pyridine and 5mL of acetic anhydride, and dark red.

A.2.2.4 sodium test

Weigh 1g sample accurate to 0.01g, dissolved in an appropriate amount of water, add 1mL hydrochloric acid, dilute with water to 20mL. The take 1mL A sample solution, adding 5mL cobalt acetate - uranyl solution, shake, there should be a yellow precipitate.

A.3 Determination of sodium citrate ($C_6H_7NaO_7$) content (dry basis) of A.3.1 Reagents and materials Sodium hydroxide standard titration solution. $c(NaOH) = 0.1mol/L$.

A.3.2 Instruments and Equipment Titrator.

A.3.3 Analysis step

The dried product weighed 0.18gA.4.1 A, accurate to 0.0002g. Was dissolved in 25mL water, titrated with sodium hydroxide standard titration solution, Potentiometric method indicates the end, the results and titration with blank test correction.

A.3.4 Calculation Results Sodium citrate ($C_6H_7NaO_7$) content (dry basis) w_1 , according to formula (A.1) Calculated.

$V_1 - V_0$

$1000 \times c \times M$

100% (A.1)

Where.

Volume V_1 --- sample consumption of sodium hydroxide standard titration solution, in milliliters (mL);

V_0 --- blank test volume consumed sodium hydroxide standard titration solution, in milliliters (mL);

1000 --- conversion factor;

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

--- The M molar mass of sodium citrate, units of grams per mole (g/mol), [$M (2C_6H_7NaO_7) = 107.06$];

m_1 --- sample mass, in grams (g).

A.4 Determination of loss on drying A.4.1 Analysis step Weigh about 1g sample, accurate to 0.0002g, placed in a pre dried to a constant mass of $105\text{ }^\circ\text{C} \pm 2\text{ }^\circ\text{C}$ weighing bottle, paved Layer of 5mm or less. At $105\text{ }^\circ\text{C} \pm 2\text{ }^\circ\text{C}$ constant temperature drying oven 4h, placed in a desiccator to cool 30min weighing. Reserved dried A determination of citric acid was used as a sodium content.

A.4.2 Calculation Results Loss on drying mass fraction w_2 , according to equation (A.2) Calculated.

$m_2 - m_3$

100% (A.2)

Where.

M_2 --- dried before the mass of the sample, in grams (g).

Quality, unit m_3 --- after drying the sample in grams (g).

A.5 Determination of oxalate A.5.1 Reagents and materials A.5.1.1 zinc particles.

A.5.1.2 hydrochloric acid.

A.5.1.3 phenylhydrazine hydrochloride solution. 10g/L.

A.5.1.4 potassium hexacyano iron (III) solution. 50g/L.

A.5.1.5 oxalate standard solution. 0.05mg/mL. Oxalate with water before use standard solution 0.1mg/mL dilution from.

A.5.2 Analysis step

Weigh 0.5g sample, accurate to 0.0002g, dissolved in 4mL water, add 3mL hydrochloric acid and zinc tablets 1g, heated in boiling water bath 1min. Place 2min at room temperature, and the supernatant was placed in a solution containing 0.25mL phenylhydrazine hydrochloride tubes. Mixing, heated to boiling, Immediately cooled. The solution was transferred to ground glass graduated cylinder, add an equal volume of hydrochloric acid, plus 0.25mL potassium hexacyano iron (III) solution, mix well After leaving 30min. The color of the sample solution can not be deeper than the standard solution.

In 4.0mL oxalate standard solution in place of the sample, dissolved in 4mL water, and hydrochloric acid was added 3mL 1g zinc particles, heated in a boiling water bath 1min. Place 2min at room temperature, and the supernatant was placed in a solution containing 0.25mL phenylhydrazine hydrochloride tubes. Mixing, heated to boiling, Immediately cooled. The solution was transferred to ground glass graduated cylinder, add an equal volume of hydrochloric acid, plus 0.25mL potassium hexacyano iron (III) solution, mix well After leaving 30min.