GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

GB/T 1886.44-2016

National Food Safety Standard - Food Additives - Sodium Ascorbate

食品安全国家标准 食品添加剂 抗坏血酸钠

Issued on: August 31, 2016 **Implemented on: January 01, 2017**

Issued by: National Health and Family Planning Commission of the People's Republic of China

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National Food Safety Standard - Food Additives - Sodium Ascorbate

1 Scope

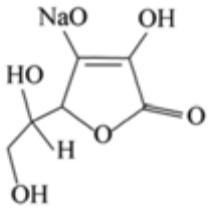
This Standard is applicable to the food additive, sodium ascorbate, that is prepared with ascorbic acid and sodium salt as raw materials.

2 Molecular formula, structural formula and relative molecular mass

2.1 Molecular formula

$C_6H_7NaO_6$

2.2 Structural formula



2.3 Relative molecular mass

198.11 (according to the international relative mass of 2007)

3 Technical requirements

3.1 Sensory requirements

Sensory requirements shall meet the requirements of Table 1.

Table 1 -- Sensory requirements

Item	Requirement	Inspection method
Color	White to light yellow	Take an appropriate amount of specimen and place it in a clean, dry white porcelain dish. Observe its color and state under natural light.
State	Crystalline solid	

Annex A

Inspection methods

A.1 General

Unless otherwise specified, the reagents and water used in this Standard refer to analytically pure reagents and grade three water specified in GB/T 6682. The standard titration solution used in the test, the standard solution for the determination of impurities, preparations and products, unless otherwise specified, are prepared in accordance with the provisions of GB/T 601, GB/T 602 and GB/T 603. When the solution used in the test does not indicate which solvent is used for preparation, it refers to the aqueous solution.

A.2 Identification test

A.2.1 Solubility

1g of specimen can be dissolved in 2mL of water.

A.2.2 Identification

A.2.2.1 Method summary

The ascorbic acid part in the specimen has a dienol-based structure, has strong reducing properties, and has the property of carbohydrates.

A.2.2.2 Reagents and materials

A.2.2.2.1 Activated carbon.

A.2.2.2.2 Pyrrole.

A.2.2.2.3 Hydrochloric acid.

A.2.2.2.4 Alkaline tartrate copper acid solution.

A.2.2.2.5 Hydrochloric acid solution: 9→1000.

A.2.2.2.6 Trichloroacetic acid solution: Take 6g of trichloroacetic acid. Add 25ml of trichloromethane to dissolve. Add 0.5ml of 30% hydrogen peroxide solution. Shake well to obtain.

A.2.2.2.7 Potassium carbonate solution: 150g/L.

A.2.2.2.8 Potassium pyroantimonate solution: Take 2g of potassium pyroantimonate. Dissolve it in 85mL of hot water. Quickly cool. Add 10mL of

A.3.2.3 Sulfuric acid solution: Take 57mL of sulfuric acid. Slowly pour into the right amount of water. Cool to room temperature. Add water to dilute to 1000mL. Shake well.

A.3.2.4 Iodine standard titration solution: $c(\frac{1}{2}I_2)=0.1\ mol/L$.

A.3.2.5 Starch indicator solution: 10g/L.

A.3.3 Analysis steps

Weigh about 400mg of the specimen that is dried by phosphorus pentoxide for 24h, to the nearest of 0.0002g. Use 100mL of solution that is mixed by newly boiled cold distilled water and 25mL of sulfuric acid solution to dissolve. Immediately use 0.1mol/L iodine standard titration solution to titrate. Near the end point, add 3mL of the starch indicator solution to the solution till it shows blue and shall not fade within 30s.

A.3.4 Result calculation

The mass fraction of sodium ascorbate ($C_6H_7NaO_6$) content (on a dry basis), w_1, is calculated according to formula (A.1):

$$w_1=\frac{\frac{V}{1\ 000}\times c\times M}{m_1}\times 100\% \qquad \cdots\cdots(A.1)$$

Where,

V - Volume of iodine standard titration solution consumed by specimen, in milliliters (mL);

1000 - Conversion factor;

c - Concentration of iodine standard titration solution, in Molar per liter (mol/L);

M - Molar mass of sodium ascorbate, in grams per Molar (g/mol), $[M(\frac{1}{2}C_6H_7NaO_6)=99.05)]$;

m_1 - Specimen mass, in grams (g).

The relative deviation of two parallel determination results in this method shall not exceed 0.3%.

A.4 Determination of dry weight loss

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