

ICS 67.220.20

CCS X 42



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

**GB 1886.43-2015**

Replacing GB 15809-1995

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**National Food Safety Standard -- Food Additives -- Calcium  
ascorbate**

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People's Republic of China**

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426.34 (according to 2007 international relative atomic mass)

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### Foreword

This standard replaces GB 15809-1995 "food additive calcium ascorbate."

This standard compared with GB 15809-1995, the main changes are as follows.

--- Standard name was changed to "national food safety standards for food additives calcium ascorbate."

National Food Safety Standard

Food additive calcium ascorbate

### 1 Scope

This standard applies to ascorbic acid and calcium for raw materials of food additive calcium ascorbate.

#### 2.1 Chemical Name

Calcium ascorbate

Formula 2.2

$C_{12}H_{14}CaO_{12} \cdot 2H_2O$

### 3.1 Sensory requirements

Sensory requirements shall comply with the requirements of Table 1.

Table 1 Sensory requirements

Project requires test methods

White or light yellow color

Odour odorless

Status crystalline powder

Take the right amount of sample is placed in a clean, dry white porcelain dish, self

Observe the color and state of natural light, smell its flavor

### 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

Calcium ascorbate content ( $C_{12}H_{14}CaO_{12} \cdot 2H_2O$

Meter), w /%  $\geq$

### 98.0 Appendix A A.3

20D 95 ° ~ 97 ° Appendix Specific rotation  $[\alpha]_D^{20}$  A in A.4

Fluoride, w /%  $\leq 0.001$  A.5 in Appendix A

pH (10% aqueous solution) 6.8 ~ 7.4 A.6 in Appendix A

Arsenic (As)/(mg/kg)  $\leq 3.0$  GB 5009.76

Heavy metals (Pb)/(mg/kg)  $\leq 10.0$  Appendix A A.7

Oxalate by test A.8 in Appendix A

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. Reagents

Used in the standard solution, standard solution for measuring impurities, formulations and

products, did not indicate when the other requirements according to GB/T 601, GB/T 602, GB/T 603 provisions of the preparation. 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 methyl red test solution. take 0.1g methyl red plus 0.05mol/L sodium hydroxide solution 7.4mL to dissolve, add water, diluted to 200mL

That is, too. Color range of pH4.2 ~ pH6.3 (test solution from red to yellow).

A.2.1.2 ammonia solution. take ammonia 400mL, diluted with water to 1000mL.

A.2.1.3 hydrochloric acid solution. take hydrochloric 234mL, diluted with water to 1000mL.

A.2.1.4 ammonium oxalate test solution. oxalic acid from ammonia 3.5g, add water to dissolve into a 100mL.

A.2.1.5 dichloro indophenol sodium test solution. take 2,6-dichloro-indophenol sodium 0.1g, add water, 100mL dissolve, and filtered.

### A.2.2 Identification method

A.2.2.1 Take 1g sample was dissolved in 10mL of water, add methyl red indicator solution 2 drops of hydrochloric acid and then dropping to just acidic; plus grass acid solution, namely

A white precipitate; separating the precipitate insoluble in acid, but soluble in hydrochloric acid.

A.2.2.2 Take 1g sample was dissolved in 10mL water, adding sodium dichloro indophenol two drops of test solution, sodium dichloro-indigo phenol test solution fade.

## A.3 Determination of calcium ascorbate content ( $C_{12}H_{14}CaO_{12} \cdot 2H_2O$ basis)

### A.3.1 principle of the method

Ascorbic acid in the sample can be quantitatively oxidized to iodine dehydrogenase ascorbic acid, based on the color change of the sample solution determine the titration end point.

### A.3.2 Reagents and materials

Iodine standard titration solution. c 12I2

$\div = 0.1\text{mol/L}$ .

### A.3.3 Analysis step

Weigh a sample of about 0.3g, set 250mL Erlenmeyer flask, add water to dissolve 50mL, titration with iodine standard solution immediately, to the solution was light

Yellow, does not fade in the 30s, is the titration end point.

#### A.3.4 Calculation Results

Calcium ascorbate content ( $C_{12}H_{14}CaO_{12} \cdot 2H_2O$  meter) mass fraction  $w_1$ , according to equation (A.1) Calculated.

$w_1 =$

$V \times c \times$

$m \times 100\%$

(A.1)

Where.

Volume  $V$  --- sample consume iodine standard solution titration, in milliliters (mL);

$C$  --- iodine concentration standard titration solution, expressed in moles per liter (mol/L);

Molar mass  $M$  --- calcium ascorbate, in units of grams per mole (g/mol),  $M$

$4C_{12}H_{14}CaO_{12}$

$\cdot 2H_2O$

$\div = 106.6$

$\hat{=}$

$\acute{=}$

#### **1000 --- conversion factor;**

$M$  --- the quality of the sample, in grams (g).

This method two parallel determination results relative deviation of not more than 0.3%.

#### A.4 Determination of specific rotation $[\alpha]_{20D}$ of

##### A.4.1 Instruments and Equipment

Polarimeter.

##### A.4.2 Analysis step

1g sample taken with water to 25mL, according to GB/T 613 Determination.

#### A.5 Determination of fluoride

##### A.5.1 Reagents and materials

###### A.5.1.1 sodium fluoride.