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

GB 1886.42-2015

Replacing GB 15358-2008

**National Food Safety Standard -- Food Additives -- DI-tartaric
acid**

食品安全国家标准 食品添加剂 dl-酒石酸

(English Translation)

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Foreword

This standard replaces GB 15358-2008 "Food Additives dl- tartrate." this standard compared with GB 15358-2008, the main changes are as follows.

--- Standard name was changed to "national food safety standards for food additives dl- tartrate." National Food Safety Standard Food Additives dl- tartrate

1 Scope

This standard applies to maleic anhydride and hydrogen peroxide as raw materials through oxidation, hydrolysis and prepared food additive dl- tartrate.

2.1 Chemical Name

2,3-dihydroxybutanedioic acid Formula 2.2 $C_4H_6O_6 \cdot nH_2O$ (the crystals of $n = 1$, dry product $n = 0$)

2.4 Relative molecular mass

168.10 (crystalline product) (according to 2007 international relative atomic mass) 150.09 (dry product) (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

Claim

Anhydrous crystalline product products Testing method Colorless or white color white State crystal or crystalline powder particles or powder Take the right amount of sample is placed in a clean, dry white porcelain dish, self However, its color and light observation status

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 dl- tartaric acid ($C_4H_6O_6$) content (dry basis), w /% ≥ 99.5
 Appendix A A.4 Melting range/ $^{\circ}C$ 200 ~ 206 Appendix A A.5 Loss on drying, w /%
 Crystalline product ≤ 11.5 Dry goods ≤ 0.5 A.6 in Appendix A Residue on ignition, w /%
 ≤ 0.1 Appendix A A.7 Sulfate (SO_4 dollars), w /% ≤ 0.04 Appendix A A.8 Yi oxide by
 testing A.9 in Appendix A Heavy metals (Pb)/(mg/kg) ≤ 10.0 GB 5009.74 Arsenic
 (As)/(mg/kg) ≤ 2.0 GB 5009.76 Appendix A Testing method A.1 Warning Test procedure
 may lead to dangerous situations. The operator shall take appropriate safety and health
 practices.

A.2 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.3 Identification Test A.3.1 Optical Test Weigh 1.0g sample accurate to 0.01g, add water to dissolve 10mL, according to the provisions of GB/T 613 was measured to be optically inactive.

A.3.2 pH test

Weigh 1.0g sample accurate to 0.01g, add water to dissolve 10mL, blue litmus paper test, should be red.

A.3.3 reactivity test Tartrate A.3.3.1 Reagents and materials A.3.3.1.1 nitrate.

A.3.3.1.2 sulfuric acid.

A.3.3.1.3 sodium hydroxide solution. 40g/L.

A.3.3.1.4 silver nitrate solution. 20g/L.

A.3.3.1.5 ammonia solution. 2 -> 5.

A.3.3.1.6 acetic acid solution. 1 -> 4.

A.3.3.1.7 solution of ferrous sulfate. 80g/L.

A.3.3.1.8 hydrogen peroxide solution. 1 -> 10.

A.3.3.1.9 resorcinol solution. 20g/L.

A.3.3.1.10 potassium bromide solution. 100g/L.

A.3.3.2 analysis step A.3.3.2.1 Preparation of sample solution. Weigh 5.0g sample accurate to 0.01g, add a little water to dissolve, then sodium hydroxide solution and to Neutral, add water to 100mL, as a sample solution A.

A.3.3.2.2 add silver nitrate solution in the sample solution A, a white precipitate. Separating the precipitate, add nitric acid when its part, namely precipitation Dissolved. Add ammonia solution and heated in another part of the precipitate was dissolved slowly and should generate silver mirror.

A.3.3.2.3 Two drops of acetic acid, one drop of ferrous sulfate solution, 2 drops to 3 drops of hydrogen peroxide solution and an excess of sodium hydroxide solution in the sample A solution, that is significant purple to purple.

A.3.3.2.4 pre ~ 5mL added 2 drops 3 drops of sulfuric acid and 2 drops of a solution of resorcinol to 3 drops of potassium bromide solution was added 2 drops ~ 3 drops of sample solution A, heated in a water bath 5min ~ 10min, the solution should be obvious dark blue. After cooling, the excess of water injection, should significantly red.

Determination A.4 dl- tartaric acid ($C_4H_6O_6$) content (dry basis) of A.4.1 Method summary Phenolphthalein as indicator, titrated with sodium hydroxide standard sample (first dried) solution, according to standard titration with sodium hydroxide solution , Total acid content calculated in terms of dl- tartaric acid $C_4H_6O_6$ content.

A.4.2 Reagents and materials A.4.2.1 standard Huai sodium hydroxide titration solution. c (NaOH) = 0.1mol/L.

A.4.2.2 phenolphthalein indicator solution. 10g/L.

A.4.3 Analysis step

A.4.3.1 crystalline sample processing products. Weigh about 5g samples, accurate to 0.0002g, placed in a constant quality of the weighing bottle with lid, in Dried to a constant mass, as an oven $105\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ of dried B.

A.4.3.2 For crystalline product weighed about 2g dried B (A.4.3.1), accurate to 0.0002g; for dry goods, weigh about 2g dried D (A.6.2), accurate to 0.0002g. Dissolved in water, move to 250mL volumetric flask, dilute to the mark, Pipette $25\text{mL} \pm 0.02\text{mL}$ in 250mL conical flask, add 2 drops of phenolphthalein indicator solution, titration with sodium hydroxide standard solution to reddish, maintaining 30s does not fade as the end point.

A.4.3.3 measured at the same time, according to the same procedure and the determination of the sample without using the same amount of reagent blank test solution.

A.4.4 Calculation Results dl- tartaric acid (C₄H₆O₆) content (dry basis) of the mass fraction w₁, according to equation (A.1) Calculated.

V₁-V₀

1000 x c x M

x 100% (A.1)

Where.

Volume V₁ --- sample consumption of sodium hydroxide standard titration solution, in milliliters (mL);

V₀ --- 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);

M --- dl- tartrate molar mass in grams per mole (g/mol), [M (2C₄H₆O₆) = 75.04];

M₁ --- the quality of the sample, in grams (g);

Volume 25 --- measured for the sample solution taken, in milliliters (mL);

250 --- volume of treated samples of constant volume, in milliliters (mL).

Calculation result to two decimal places.

Take two parallel determination results of the arithmetic average of the measurement results, the results of two parallel determination of the absolute difference is not more than 0.2%.

A.5 Determination of the melting point range Performed according to GB/T 617-2006 4.1 requirements. A.6.2 dry matter content of the sample C, dried D, silicone oil heat transfer liquid.

The difference between two parallel determination results, initial and final melting point melting point of not more than 0.4 °C, whichever is the arithmetic average of the measurement results.

A.6 Determination of loss on drying A.6.1 according to the provisions of GB 5009.3 direct drying were drying temperature is 105 °C ± 2 °C. Weigh the amount of product crystallized sample was 1g, Accurate to 0.0002g; anhydrous product sample weighed amount of 6g, accurate to 0.0002g.