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

GB 25556-2010

**National food safety standards of food additives potassium
hydrogen tartrate
(English Translation)**

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Foreword

Appendix A of this standard is a normative appendix.

National standards for food safety Food Additives Potassium tartrate

1 Scope

This standard applies to L () - tartaric acid and potassium hydroxide (or potassium carbonate) reaction of the food additive potassium hydrogen tartrate.

2 Normative reference documents

The documents cited in this standard are indispensable for the application of this standard. Any reference to the date of the document, only the date of the edition this applies to this standard. For undated references, the latest edition (including all amendments) applies to this standard.

3.1 Chemical name

(2R, 3R) potassium 2,3-dihydroxybutanediate

3.2 Molecular formula

C₄H₅KO₆

3.4 Relative molecular mass

188.18 (according to the 2007 International Relative Atomic Quality)

4 Technical requirements

4.1

sensory requirements. should be consistent with the provisions of Table 1.

Table 1 sensory requirements

The project requires a test method Color and tissue state white crystalline or crystalline powder Odor is sour Take appropriate laboratory samples, placed in a clean, dry white porcelain dish, in natural light Line, observe the appearance, and smell its taste

4.2

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

Table 2 Physical and chemical indicators

Item Index Test Method Potassium hydrogen tartrate (based on $C_4H_5KO_6$, dry basis), w /% 99.0 to 101.0 Appendix A, A.4 Specific rotation $\alpha_D(20^\circ C)$ $[(^\circ) \cdot dm^2 \cdot kg^{-1}]$ 32.5 to 35.5 Appendix A A.5 the clarity test was carried out in Test A (A.6) Dry reduction, w /% ≤ 0.5 Appendix A A.7 Arsenic (As)/(mg/kg) ≤ 3 Appendix A A.8 Lead (Pb)/(mg/kg) ≤ 2 Appendix A A.9 Sulfate (calculated as SO_4), w /% ≤ 0.019 Appendix A. A.10 Ammonium Salt Test Pass Test Appendix A in A.11 Appendix A (Normative appendix) Testing method A.1 Warning Some of the test procedures specified in the test method may result in a hazardous situation. Operators should take appropriate safety and protective measures.

A.2 General provisions Unless otherwise stated, only the reagents identified as analytical reagents and the tertiary water specified in GB/T 6682-2008 are used in the analysis.

Standard titration solution used in the test method, standard solution for the determination of impurities, preparations and articles, in the absence of other requirements, GB/T 601, GB/T 602 and GB/T 603.

A.3 Identification test A.3.1 Reagents and materials A.3.1.1 Nitric acid.

A.3.1.2 Hydrochloric acid.

A.3.1.3 Ammonia solution. 2 3.

A.3.1.4 Hydrochloric acid solution. 1 3.

A.3.1.5 Silver nitrate solution. 2 g/L.

A.3.2 Analysis steps A.3.2.1 Weigh 1g of laboratory samples, accurate to 0.01g, add 10mL ammonia solution dissolved, the solution was right optical.

A.3.2.2 Weigh 0.5g of laboratory samples, accurate to 0.01g, slowly heating the caramel odor and carbonization. Add 5 mL to the residue Water, full shake, the test liquid was alkaline. Take the test solution and add hydrochloric acid solution and filter. The test solution showed potassium salt reaction.

Potassium salt reaction. wet with platinum wire ring dipped in hydrochloric acid, the flame burning to colorless. And then dipped in the test solution on the flame burning, in the cobalt glass, Flame should be violet.

A.3.2.3 Weigh 1g of laboratory samples, accurate to 0.01g, add 20mL water to dissolve, add 2 to 3 drops of silver nitrate solution, generate white Color precipitation. Separation of the precipitate, add nitric acid in a part of the precipitation that is dissolved. Add an aqueous solution of ammonia in another part and heat, dissolve and dissolve Slowly silver mirror generation.

A.4 Determination of potassium hydrogen tartrate A.4.1 Methodological Summary the aqueous solution of the dried sample was titrated with sodium titanate titration solution with phenolphthalein as the indicator, and the solution was titrated according to the standard of sodium hydroxide the amount of potassium hydrogen tartrate (calculated as $C_4H_5KO_6$) was calculated.

A.4.2 Reagents and materials A.4.2.1 sodium hydroxide standard titration solution. c (NaOH) ~ 0.5mol/L.

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

A.4.3 Analysis steps Weighed 2.0gA.7 in the dry A, accurate to 0.0002g, add 100mL water dissolved in water, add 2 drops of phenolphthalein indicator solution, with hydrogen Sodium standard titration solution titrated to reddish, keep 30s do not fade for the end.

A.4.4 Calculation of results the mass fraction w of potassium hydrogen tartrate (based on $C_4H_5KO_6$, dry basis) is expressed in%, calculated according to formula (A.1) $w = (V/1000) cM m \times 100\%$ (A.1) where.

V --- sample consumption of sodium hydroxide standard titration solution (A.4.2.1) volume of the value in milliliters (mL);

c - the exact value of sodium hydroxide standard titration solution concentration in moles per liter (mol/L);

m - the mass of the sample, in grams (g);

M - the molar mass of potassium hydrogen tartrate in grams per mole (g/mol) ($M = 188.18$).

The arithmetic mean of the results of two parallel measurements is the result of the report. The absolute difference between the two parallel determinations is not more than 0.2%.

A.5 Determination of specific rotation A.5.1 Weigh 5g of laboratory samples, accurate to

0.001g, add 10mL ammonia solution (2 3), and transferred to 50mL volumetric flask, Diluted with water to the mark, shake.

The specific rotation is α (20 ° C, D) and the value is expressed by " $^{\circ}$ · dm² · kg⁻¹", calculated according to the formula (A.2) α (20 ° C, D) = α ρ l where.

α - the measured angle of rotation, in degrees (°);

l - the length of the rotating tube in dm (dm);

ρ - Mass concentration of the effective components in solution, in grams per milliliter (g/mL).

A.5.2 Other according to GB/T 613.

A.6 clarification test A.6.1 Reagents and materials A.6.1.1 dextrin solution. 20g/L.

A.6.1.2 Silver nitrate solution. 20 g/L.

A.6.1.3 Nitric acid solution. 1 1.

A.6.1.4 Ammonia solution. 2 1.

A.6.1.5 Turbidity standard solution. chlorine (Cl) 0.01mg/mL. Determination of c (HCl) = 0.1mol/L hydrochloric acid standard titration solution (14.1 ± 0.02) mL, placed in 50mL volumetric flask, diluted to the mark. Measure the solution (10 ± 0.02) mL in a 1000 mL volumetric flask and add water Dilute to the scale, shake it.

A.6.2 Analysis steps Take (0.5 ± 0.02) mL turbidity standard solution, add water to 20mL, add 1mL nitric acid solution, 0.2mL dextrin solution and 1mL nitric acid Acid solution, add water to 25mL, shake, dark place 15min, as the standard turbid solution.

Weigh 0.5g of laboratory samples, accurate to 0.01g, placed in 10mL colorimetric tube, add 3.0mL ammonia solution, as the test solution.

Measure the amount of standard turbid solution in the same volume as the test solution in another colorimetric tube. In the absence of direct sunlight, the axial and lateral views the turbidity of the test solution shall not be greater than the turbidity of the standard turbid solution.

A.7 Determination of dry reduction Weigh about 3g of laboratory samples, accurate to 0.0002g, at (105 ± 2) °C for 3h. Others according to GB/T 6284. Paul A portion of the dried product (this is dry matter A) was used for the determination of potassium hydrogen tartrate.

The arithmetic mean of the results of two parallel measurements is the result of the report. The absolute difference between the two parallel determinations is not more than 0.05%.

A.8 Determination of arsenic According to GB/T 5009.76.