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

GB 25549-2010

**National food safety standards of food additives sodium
propionate
(English Translation)**

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Foreword

Appendix A of this standard is a normative appendix.

National standards for food safety Food Additives Sodium propionate

1 Scope

This standard applies to propionic acid and sodium hydroxide (or sodium carbonate) as raw materials, the neutralization, refining, drying of the food additive sodium propionate.

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 Molecular formula

$C_3H_5NaO_2$

3.2 Structural formula

H₃C

3.3 Relative molecular mass

96.06 (according to 2007 International relative atomic mass)

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 crystals, granules or crystalline powder Odor-free or with trace acetic acid-butyric flavor Take appropriate laboratory samples, placed in a clean, dry white disk, in natural light Line, visual observation, smell the smell

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 Sodium propionate (on a dry basis), w /% 99.0 to 100.5 Appendix A, A.4 Dry reduction, w /% ≤ 1.0 Appendix A A.5 Alkalinity test passed in Appendix A of Test A.6 Arsenic (As)/(mg/kg) ≤ 3 Appendix A A.7 Heavy metals (Pb)/(mg/kg) ≤ 4 Appendix A A.8 Iron (Fe)/(mg/kg) ≤ 30 Appendix A A.9 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 hydrochloric acid solution. 1 1.

A.3.1.2 Sulfuric acid solution. 1 9.

A.3.1.3 Cobalt Acetate. Urethane Solution. Weigh 40g of uranyl acetate, add 28.6mL of glacial acetic acid and an appropriate amount of water, dissolve warm and dilute with water.

Released to 500 mL for Solution A. Another weighing.200g of cobalt acetate dissolved in 28.6mL glacial acetic acid and the amount of water, and diluted with water to 500mL for solution B. While maintaining the warmth, solution A and solution B were mixed, cooled to room temperature, allowed to stand for 2 h, filtered and allowed to stand.

A.3.2 Analysis steps A.3.2.1 Identification of propionic acid Weigh 0.5g of laboratory samples, accurate to 0.01g, placed in a 100mL beaker containing 5mL water, stirring dissolved, add 5mL sulfur Acid solution, heating, there should be a special odor generated.

A.3.2.2 Identification of sodium salts Weigh 1g of laboratory samples, accurate to 0.01g, with the appropriate amount of water dissolved, add 1mL hydrochloric acid solution, diluted with water to 20mL. take 1mL of the sample solution, add 5mL cobalt acetate - uranyl nitrate solution, shake, should be yellow precipitation.

Low temperature burning laboratory samples produced alkaline residue, add acid should be generated by bubbles.

A.4 Determination of sodium propionate A.4.1 Methodological Summary Dried samples with glacial acetic acid as solvent, crystal violet as indicator, titration with perchloric acid standard titration, according to the consumption of perchloric acid standard the volume of the titration solution is calculated for the sodium propionate content.

A.4.2 Reagents and materials A.4.2.1 Glacial acetic acid.

Rh. Results Results Results compositions. Decision Tang A.4.2.3 Crystal violet indicator solution. 5g/L.

A.4.3 Analysis steps A.4.3.1 Weigh the dry product C of about 0.2gA.5.1, accurate to 0.0002g, placed in a dry Erlenmeyer flask, add 40mL ice B Acid to dissolve, if necessary, can be heated to room temperature. Add 2 drops of crystal violet indicator solution, titration with perchloric acid standard solution to the solution by Purple to blue and green for the end.

A.4.3.2 At the same time as the determination, the same amount of reagent solution was used as a blank test in the same procedure as for the measurement.

A.4.4 Calculation of results the mass fraction w_1 of sodium propionate (on a dry basis) is expressed in% and is calculated according to the formula (A.1) $w_1 = [(V_1 - V_2)/1000] cM m \times 100\%$ (A.1) where.

V_1 --- sample consumption perchloric acid standard titration solution (A.4.2.2) volume of the value in milliliters (mL);

V_2 --- blank test consumption perchloric acid standard titration solution (A.4.2.2) volume of the value in milliliters (mL);

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

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

The molar mass of M - sodium propionate is in grams per mole (g/mol) ($M = 96.06$).

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

A.5 Determination of dry reduction A.5.1 Analysis steps Weigh about 1g of laboratory

samples, accurate to 0.0002g, placed in the pre-105 °C ~ 110 °C dry to the constant quality of the weighing bottle , And a layer of 5 mm or less is laid. In 105 °C ~ 110 °C constant temperature drying oven for 1h, placed in the dryer for 30min said the amount. A portion of the dried product (this is dry matter C) is used for the determination of sodium propionate content.

A.5.2 Calculation of results the mass fraction w_2 of the drying reduction, the value in%, calculated according to the formula (A.2).

$m - m_1$

$m \times 100\%$

Where.

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

m_1 --- the quality of the sample after drying, in grams (g).

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 0.02%.

A.6 Alkalinity test

A.6.1 Methodological summary Phenolphthalein as the indicator solution, with the prescribed volume of sulfuric acid standard titration solution and sample solution, the alkalinity of the limited test.

A.6.2 Reagents and materials A.6.2.1 Sulfuric acid standard titration solution. $c(1/2H_2SO_4) = 0.1 \text{ mol/L}$.

A.6.2.2 phenolphthalein indicator solution. 10g/L.

A.6.3 Analysis steps Weigh 4.0g of laboratory samples, accurate to 0.01g, dissolved in 20mL without carbon dioxide water, add 2 drops of phenolphthalein indicator solution, such as solution was Pink, titrated with sulfuric acid standard titration to pink fade, the consumption of sulfuric acid standard titration solution should be $\leq (0.6 \pm 0.02) \text{ mL}$.

A.7 Determination of arsenic According to GB/T 5009.76 arsenic spot method. Weigh 1.0g of laboratory samples, accurate to 0.01g, add 5mL of water to dissolve.

$(3 \pm 0.02) \text{ mL}$ of arsenic (As) standard solution (equivalent to $3.0 \mu\text{gAs}$) with a pipette at the same time as the sample the same treatment.

A.8 Determination of heavy metals According to GB/T 5009.74. Weigh 5.0g laboratory samples, accurate to 0.01g, dissolved in water, placed in 100mL volumetric flask $(0.4 \pm 0.02) \text{ mL}$ of lead (Pb) standard solution (0.01 mg/mL) was taken $(20 \pm 0.02) \text{ mL}$ of the test solution.

A.9 Determination of iron A.9.1 Reagents and materials A.9.1.1 Hydrochloric acid.