



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

GB 1886.94-2016

**National Food Safety Standard -- Food Additives- Potassium
nitrite**

食品安全国家标准 食品添加剂 亚硝酸钾

(English Translation)

Issued on: August 31, 2016

Implemented on: January 1, 2017

Issued by: National Health and Family Planning Commission

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1 Scope

This standard applies to food additives potassium nitrite.

2.1 Molecular formula

KNO₂

2.2 Relative molecular mass

85.10 (according to 2007 International Relative Atomic Quality)

3.1 Sensory requirements

Sensory requirements shall comply with the requirements of Table 1.

Table 1 sensory requirements

The project requires a test method Color status White or slightly yellow Fine particles or rod-shaped crystals Take the appropriate amount of sample placed in a clean, dry white porcelain dish, in the natural light, the concept Perceived its color and state

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 Potassium nitrite content (in dry basis), w /% $\geq$ 95.0 Appendix A
A.3 Dry reduction, w /% $\leq$ 3.0 Appendix A A.4 Lead (Pb)/(mg/kg) $\leq$ 2.0 Appendix A A.5
Appendix A Testing method A.1 General provisions the reagents and water used in this
standard refer to the pure reagent and the tertiary water specified in GB/T 6682 when no

other requirements are specified. test Standard solutions, preparations and articles for the determination of impurities in standard solutions, in accordance with GB/T 601, GB/T 602 and GB/T 603. The solution used in the test refers to the aqueous solution when it is not specified in the formulation of the solvent.

A.2 Identification test A.2.1 Identification of potassium 1g sample dissolved in 10mL water, adding sodium tartrate, the formation of white crystal precipitation, in the ammonia test solution, alkaline hydroxide and the carbonate solution can be dissolved.

A.2.2 Identification of nitrite Add dilute inorganic acid or acetic acid to deal with brownish red smoke. Add a few drops of potassium iodide to the solution of nitrite and dilute of the sulfuric acid reagent can release iodine and make the starch indicator blue.

A.2.3 easy deliquescence.

A.3 Potassium nitrite (KNO_2) content (measured on dry basis) A.3.1 Reagents and materials A.3.1.1 Sulfuric acid.

A.3.1.2 Potassium permanganate standard titration solution. $c(\text{KMnO}_4) = 0.1 \text{ mol/L}$.

A.3.1.3 oxalic acid standard titration solution. $c(\text{H}_2\text{C}_2\text{O}_4) = 0.1 \text{ mol/L}$.

A.3.2 Analysis steps Weigh the sample in advance by silica gel 4h sample 1g, accurate to 0.0002g, transferred to 100mL volumetric flask dissolved in water and diluted to the scale. This solution was placed in a solution containing 50.0 mL of potassium permanganate standard titration solution, 100 mL of water and 5 mL of sulfuric acid Solution, remove the solution when the pipette tip to keep the depth below the liquid level. Warm to $40^\circ\text{C} \pm 2^\circ\text{C}$, keep 5min, add 25.0mL grass Acid standard titration solution, heated to $80^\circ\text{C} \pm 2^\circ\text{C}$ to potassium permanganate solution titration to the end.

A.3.3 Calculation of results the mass fraction w_1 of the potassium nitrite (KNO_2) content (on a dry basis) is calculated according to formula (A.1) $w_1 =$

$25 V$

$1000 \times c \times M$

$\times 100\%$ (A.1)

Where.

25 - the amount of oxalic acid titration solution added in milliliters (mL);

V --- titration test solution consumed by potassium permanganate standard titration solution in milliliters (mL);

1000 --- volume conversion factor;

c - Potassium permanganate standard titration solution KMnO_4) In moles per liter (mol/L);

M - the molar mass of potassium nitrite , In grams per mole (g/mol), [M (2KNO₂) = 42.55];

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

10 - The volume of the diluted sample solution in milliliters (mL);

100 - The volume of the diluted sample, in milliliters (mL).

A.4 Determination of dry reduction A.4.1 Instruments and equipment A.4.1.1 weighing bottle. phi30mm x 25mm.

A.4.1.2 electric thermostat oven. can control at 105 °C ± 2 °C.

A.4.2 Analysis steps and dried at a temperature of 105 ° C ± 2 ° C until a constant mass of the flask was weighed. Approximately 2 g of the sample was weighed to 0.0002 g, and dried at 105 ° C ± 2 ° C to constant weight.

A.4.3 Calculation of results the mass fraction w₂ of the drying reduction is calculated according to the formula (A.2) $w_2 = \frac{m_1 - m_2}{m} \times 100\%$ (A.2) where.

m₁ --- the quality of the sample and weighing bottle, in grams (g);

m₂ --- the quality of the dried sample and weighing bottle, in grams (g);

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

A.5 Determination of lead (Pb) A.5.1 Reagents and materials A.5.1.1 Sulfuric acid.

A.5.1.2 Hydrochloric acid.

A.5.1.3 Nitric acid solution. 1 99.

A.5.1.4 lead standard solution I. 1mL solution containing lead (Pb) 0.1mg.

A.5.1.5 lead standard solution II. 1mL solution containing lead (Pb) 0.010mg; with a pipette to remove 10mL lead standard solution I (A.5.1.4) Placed in 100mL volumetric flask, add 1mL nitric acid, diluted with water to the mark, shake.

A.5.2 Instruments and equipment A.5.2.1 Instrument. Graphite Furnace Atomic Absorption Spectrophotometer.

A.5.2.2 Light source. lead hollow cathode lamp.

A.5.2.3 Wavelength. 283.3 nm.

A.5.2.4 Gas. argon.

A.5.3 Analysis steps A.5.3.1 Preparation of test solutions Weigh 2.5g sample, accurate to 0.0002g, add 4mL sulfuric acid and 5mL hydrochloric acid dissolved, transferred to 50mL volumetric flask, dilution to the scale.

A.5.3.2 Preparation of blank test solution Nitric acid solution as a blank test solution.

A.5.3.3 Drawing of working curves Pipetting were drawn 0.00mL, 1.00mL, 2.00mL, 3.00mL, 4.00mL and 5.00mL lead standard solution II, respectively Placed in 100mL volumetric flask, add water to 50mL, add 8mL sulfuric acid, 10mL hydrochloric acid, diluted to the mark. Introduced atomic absorption spectrophotometry the absorbance was measured at a wavelength of 283.3 nm. The standard solution of lead mass (mg) for the abscissa, the corresponding absorbance for the vertical axis, Draw the work curve.

A.5.3.4 Determination Use the pipette to remove the appropriate test solution (the quality of the lead in the solution should be within the working curve) and the blank test solution, add water to 50mL, add 8mL sulfuric acid, 10mL hydrochloric acid, diluted to the mark. The atomic absorption spectrophotometer was introduced and measured at 283.3 nm Photometric, measured the corresponding absorbance, and in the working curve to detect the quality of lead in the test solution.

A.5.4 Calculation of results the absorbance of the blank test solution is subtracted from the absorbance of the test solution and the corresponding lead is detected from the working curve using the resulting absorbance value content.