



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

GB 1886.325-2021

**National food safety standard - Food additives - Potassium
polymetaphosphate**

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Table of Contents

1 Scope	3
2 Molecular formula and relative molecular mass	3
3 Technical requirements	3
Appendix A Inspection method	5

1 Scope

This Standard applies to the food additive potassium polymetaphosphate which is made by high-temperature dehydration polymerization, with monopotassium phosphate as the raw material.

2.1 Molecular formula

$(\text{KPO}_3)_n$

2.2 Relative molecular mass

118.069n (according to the international relative atomic mass in 2018)

3.1 Sensory requirements

Sensory requirements shall be in accordance with Table 1.

3.2 Physical and chemical indicators

Physical and chemical indicators shall be in accordance with Table 2.

Table 2 - Physical and chemical indicators

Appendix A Inspection method

WARNING: Some reagents used in this test method are toxic or corrosive;

the operator shall be careful. If it is splashed on the skin, use water to rinse it immediately. If it is serious, seek medical attention immediately.

A.1 General Provisions The reagents and water that are used in this Standard, when no other requirements are specified, refer to analytical reagents and grade-III water which is specified in GB/T 6682. The standard solution, the standard solutions, preparations and products for impurity determination, which are used in the test, are all prepared in accordance with the provisions of GB/T 601, GB/T 602, and

GB/T 603, when no other requirements are specified. The solution used in the test, if not indicated which solvent is used, refers to aqueous solution.

A.2 Identification test A.2.1 Reagents and materials A.2.1.1 Hydrochloric acid.

A.2.1.2 Silver nitrate solution: 17 g/L.

A.2.1.3 Ammonia solution: 2+3.

A.2.1.4 Nitric acid solution: 1+9.

A.2.1.5 Sodium acetate solution: 40 g/L.

A.2.2 Identification method A.2.2.1 Identification of potassium ions Weigh 0.1 g of the sample and dissolve it in 10 mL of water. Dip the platinum wire in hydrochloric acid; burn it on the flame until it is colorless; then, dip the sample solution and burn it on the flame; observe that the flame is purple under the cobalt glass.

A.2.2.2 Identification of phosphate Weigh 1 g of the sample; dissolve it in 20 mL of water; add silver nitrate solution, to produce a yellow precipitate. This precipitate is soluble in ammonia solution or nitric acid solution.

again; continue to boil until the precipitate stratifies; cool to room temperature.

Use a crucible that has been dried to constant weight at 180 °C +/- 2 °C for filtration; filter the supernatant first; use water to rinse the precipitate and filter

6 times (about 30 mL of water each time); move the precipitate into the crucible;

then, use water to rinse the precipitate 4 times; put the precipitate together with the crucible in a drying box; take it out after drying at 180 °C for 45 minutes;

cool it to room temperature in a desiccator; weigh it. Use 10 mL of water instead of the sample solution, to do a blank test at the same time.

A.3.5 Result calculation Calculate the mass fraction w_1 of phosphorus pentoxide (P_2O_5) (on a dry basis)

according to Formula (A.1).

Where:

m_1 - the mass of quinoline phosphomolybdate precipitate that is formed by the test solution, in grams (g);

m_2 - the mass of quinoline phosphomolybdate precipitate that is formed by the blank solution, in grams (g);

0.032 07 - the coefficient of conversion of quinoline phosphomolybdate to phosphorus pentoxide (P_2O_5);

500 - the initial volume of the sample solution, in milliliters (mL);

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

The test result is based on the arithmetic mean of the parallel determination results. The absolute difference between two independent determination results that are obtained under repeatability conditions is not more than 0.3%.

A.4 Determination of loss on ignition (on a dry basis)

A.4.1 Instruments and apparatuses A.4.1.1 Crucible.

A.4.1.2 Electrothermal constant-temperature dry box.

A.4.1.3 High temperature furnace.