

water at 25°, in 0.5 mL of boiling water, and in about 620 mL of alcohol. Its solutions are neutral to litmus.

Function Antimicrobial agent; preservative.

REQUIREMENTS

Identification A 1:10 aqueous solution gives positive tests for *Potassium* and *Nitrate*, Appendix IIIA.

Assay Not less than 99.0% and not more than 100.5% of KNO₃ after drying.

Chlorate Passes test.

Lead Not more than 4 mg/kg.

Loss on Drying Not more than 1%.

TESTS

Assay Dissolve about 0.4 g of sample, previously dried at 105° for 4 h and accurately weighed, in about 300 mL of water contained in a 500-mL round-bottom flask. Add 3 g of a powder of Devarda's alloy and 15 mL of a 40% sodium hydroxide solution, and connect with a spray-preventing device and condenser to the flask. Allow to stand for 2 h. Transfer 50 mL of 0.1 N sulfuric acid into a receptacle, use this to collect 250 mL of the distillate, and titrate the excess sulfuric acid with 0.1 N sodium hydroxide, using 3 drops of methyl red–methylene blue TS as the indicator. Perform a blank determination (see *General Provisions*), and make any necessary correction. Each milliliter of 0.1 N sulfuric acid is equivalent to 10.11 mg of KNO₃.

Chlorate Sprinkle about 100 mg of dry sample on 1 mL of sulfuric acid. The mixture does not turn yellow.

Lead Determine as directed under *Lead Limit Test*, Appendix IIIB, using a solution of 1 g of sample in 10 mL of water, and 4 µg of lead (Pb) ion in the control.

Loss on Drying Determine as directed under *Loss on Drying*, Appendix IIC, drying a sample at 105° for 4 h.

Packaging and Storage Store in tight containers.

Potassium Nitrite

KNO₂ Formula wt 85.10

INS: 249 CAS: [7758-09-0]

DESCRIPTION

Potassium Nitrite occurs as small, white or yellow, deliquescent granules or cylindrical sticks. It is very soluble in water, but is sparingly soluble in alcohol.

Function Color fixative in meat and meat products; antimicrobial agent.

REQUIREMENTS

Identification A 1:10 aqueous solution is alkaline to litmus and gives positive tests for *Potassium* and for *Nitrite*, Appendix IIIA.

Assay Not less than 90.0% and not more than 100.5% of KNO₂.

Lead Not more than 4 mg/kg.

TESTS

Assay Transfer about 1.2 g of sample, accurately weighed, into a 100-mL volumetric flask, dissolve in and dilute to volume with water, and mix. Pipet 10 mL of this solution into a mixture of 50.0 mL of 0.1 N potassium permanganate, 100 mL of water, and 5 mL of sulfuric acid, keeping the tip of the pipet well below the surface of the liquid. Warm the solution to 40°, allow it to stand for 5 min, and add 25.0 mL of 0.1 N oxalic acid. Heat the mixture to about 80°, and titrate with 0.1 N potassium permanganate. Each milliliter of 0.1 N potassium permanganate is equivalent to 4.255 mg of KNO₂.

Lead Determine as directed under *Lead Limit Test*, Appendix IIIB, using 1 g of sample in 10 mL of water, and 4 µg of lead (Pb) ion in the control.

Packaging and Storage Store in tight containers.

Potassium Phosphate, Dibasic

Dipotassium Monophosphate; Dipotassium Phosphate

K₂HPO₄ Formula wt 174.18

INS: 340(ii) CAS: [7758-11-4]

DESCRIPTION

Potassium Phosphate, Dibasic, occurs as a colorless or white, granular salt that is deliquescent when exposed to moist air. One gram is soluble in about 3 mL of water. It is insoluble in alcohol. The pH of a 1% solution is about 9.

Function Buffer; sequestrant; yeast food.

REQUIREMENTS

Identification A 1:20 aqueous solution gives positive tests for *Potassium* and for *Phosphate*, Appendix IIIA.

Assay Not less than 98.0% of K₂HPO₄ after drying.

Arsenic Not more than 3 mg/kg.

Fluoride Not more than 10 mg/kg.

Insoluble Substances Not more than 0.2%.

Lead Not more than 2 mg/kg.

Loss on Drying Not more than 2.0%.

TESTS

Assay Transfer about 6.5 g of sample, previously dried at 105° for 4 h and accurately weighed, into a 250-mL beaker, add 50.0 mL of 1 *N* hydrochloric acid and 50 mL of water, and stir until the sample is completely dissolved. Place the electrodes of a suitable pH meter in the solution, and, stirring constantly, slowly titrate the excess acid with 1 *N* sodium hydroxide to the inflection point occurring at about pH 4. Record the buret reading, and calculate the volume (*A*), if any, of 1 *N* hydrochloric acid consumed by the sample. Continue the titration with 1 *N* sodium hydroxide until the inflection point occurring at about pH 8.8 is reached, record the buret reading, and calculate the volume (*B*) of 1 *N* sodium hydroxide required in the titration between the two inflection points (pH 4 to pH 8.8). When *A* is equal to or less than *B*, each milliliter of the volume *A* of 1 *N* hydrochloric acid is equivalent to 174.2 mg of K₂HPO₄. When *A* is greater than *B*, each milliliter of the volume 2*B* – *A* of 1 *N* sodium hydroxide is equivalent to 174.2 mg of K₂HPO₄.

Arsenic Determine as directed under *Arsenic Limit Test*, Appendix IIIB, using a solution of 1 g of sample in 10 mL of water.

Fluoride Determine as directed in *Method IV* under *Fluoride Limit Test*, Appendix IIIB, using a 2-g sample.

Insoluble Substances Dissolve 10 g of sample in 100 mL of hot water, and filter through a tared filtering crucible. Wash the insoluble residue with hot water, dry at 105° for 2 h, cool, and weigh.

Lead Determine as directed in the *APDC Extraction Method* under *Lead Limit Test*, Appendix IIIB.

Loss on Drying Determine as directed under *Loss on Drying*, Appendix IIC, drying a sample at 105° for 4 h.

Packaging and Storage Store in tight containers.

Potassium Phosphate, Monobasic

Potassium Biphosphate; Potassium Dihydrogen Phosphate; Monopotassium Phosphate

KH₂PO₄ Formula wt 136.09
INS: 340(i) CAS: [7778-77-0]

DESCRIPTION

Potassium Phosphate, Monobasic, occurs as colorless crystals or as a white, granular or crystalline powder. It is stable in air. It is freely soluble in water, but is insoluble in alcohol. The pH of a 1:100 aqueous solution is between 4.2 and 4.7.

Function Buffer; sequestrant; yeast food.

REQUIREMENTS

Identification A 1:20 aqueous solution gives positive tests for *Potassium* and for *Phosphate*, Appendix IIIA.

Assay Not less than 98.0% of KH₂PO₄ after drying.

Arsenic Not more than 3 mg/kg.

Fluoride Not more than 10 mg/kg.

Insoluble Substances Not more than 0.2%.

Lead Not more than 2 mg/kg.

Loss on Drying Not more than 1%.

TESTS

Assay Transfer about 5 g of sample, previously dried at 105° for 4 h and accurately weighed, into a 250-mL beaker, add 5.0 mL of 1 *N* hydrochloric acid and 100 mL of water, and stir until the sample is completely dissolved. Place the electrodes of a suitable pH meter in the solution, and slowly titrate the excess acid, stirring constantly, with 1 *N* sodium hydroxide to the inflection point occurring at about pH 4. Record the buret reading, and calculate the volume (*A*), if any, of 1 *N* hydrochloric acid consumed by the sample. Continue the titration with 1 *N* sodium hydroxide until the inflection point occurring at about pH 8.8 is reached, record the buret reading, and calculate the volume (*B*) of 1 *N* sodium hydroxide required in the titration between the two inflection points (pH 4 and pH 8.8). Each milliliter of the volume *B* – *A* of 1 *N* sodium hydroxide is equivalent to 136.1 mg of KH₂PO₄.

Arsenic Determine as directed under *Arsenic Limit Test*, Appendix IIIB, using a solution of 1 g of sample in 10 mL of water.

Fluoride Determine as directed in *Method IV* under *Fluoride Limit Test*, Appendix IIIB, using a 2-g sample.

Insoluble Substances Dissolve 10 g of sample in 100 mL of hot water, and filter through a tared filtering crucible. Wash the insoluble residue with hot water, dry at 105° for 2 h, cool, and weigh.

Lead Determine as directed in the *APDC Extraction Method* under *Lead Limit Test*, Appendix IIIB.

Loss on Drying Determine as directed under *Loss on Drying*, Appendix IIC, drying a sample at 105° for 4 h.

Packaging and Storage Store in tight containers.

Potassium Phosphate, Tribasic

Tripotassium Phosphate

K₃PO₄ Formula wt 212.27
INS: 340(iii) CAS: [7778-53-2]

DESCRIPTION

Potassium Phosphate, Tribasic, occurs as white, hygroscopic crystals or granules. It is anhydrous or may contain one molecule of water of hydration. It is freely soluble in water, but