August 27, 1996

Potassium Phosphate, Dibasic

Dipotassium Monophosphate; Dipotassium Phosphate

\[ \text{K}_2\text{HPO}_4 \]  

**Formula wt 174.18**

**INS: 340(ii)**  

**CAS: [7758-11-4]**

**DESCRIPTION**

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

**Functional Use in Foods**  
Buffer; sequestrant; yeast food; dietary supplement.

**REQUIREMENTS**

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

- **Assay**  
  Not less than 98.0% of K\(_2\)HPO\(_4\) after drying.

- **Arsenic (as As)**  
  Not more than 3 mg/kg.

- **Fluoride**  
  Not more than 10 mg/kg.

- **Heavy Metals (as Pb)**  
  Not more than 0.0015%.

- **Insoluble Substances**  
  Not more than 0.2%.

- **Lead**  
  Not more than 2.5 mg/kg.

- **Loss on Drying**  
  Not more than 2.0%.

**TESTS**

**Assay**  
Transfer about 6.5 g of the 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 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) 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 mL of the volume A of 1 N hydrochloric acid is equivalent to 174.2 mg of K\(_2\)HPO\(_4\). When A is greater than B, each mL of the volume 2B – A of 1 N sodium hydroxide is equivalent to 174.2 mg of K\(_2\)HPO\(_4\).

**Arsenic**  
A solution of 1 g in 10 mL of water meets the requirements of the Arsenic Test, Appendix IIIB.
Fluoride  Determine as directed under Fluoride in the monograph for Calcium Phosphate, Dibasic.

Heavy Metals  A solution of 1.33 g in 25 mL of water meets the requirements of the Heavy Metals Test, Appendix IIIB, using 20 µg of lead ion (Pb) in the control (Solution A), using glacial acetic acid to adjust the pH of the sample solution.

Insoluble Substances  Dissolve 10 g 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  A 10-g sample using a 5 µg/mL Standard Lead Solution meets the requirements of the APDC Extraction Method for Lead, Appendix IIIB.

Loss on Drying, Appendix IIC  Dry at 105° for 4 h.

Packaging and Storage  Store in tight containers.