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Phosphoric Acid

H_3PO_4 98.00

Phosphoric acid CAS RN®: 7664-38-2.

DEFINITION

Phosphoric Acid contains NLT 85.0% and NMT 88.0%, by weight, of H_3PO_4.

[**Caution—**Avoid contact, because Phosphoric Acid rapidly destroys tissues.]

IDENTIFICATION

• **A. Identification Tests—General, *Phosphate*⟨191⟩:** When carefully neutralized with 1 N sodium hydroxide, phenolphthalein TS being used as the indicator, it meets the requirements.

ASSAY

• **Procedure**

Sample: 1 g

Blank: 120 mL of water

Titrimetric system

(See *Titrimetry* ⟨541⟩.)

Mode: Direct titration

Titrant: 1 N sodium hydroxide VS

Endpoint detection: Visual

Analysis: Place the *Sample* in a tared, glass-stoppered flask, and dilute it with water to 120 mL. Add 0.5 mL of thymolphthalein TS. Titrate with 1 N sodium hydroxide VS to the first appearance of a blue color. Perform a blank determination.

Calculate the percentage of phosphoric acid (H_3PO_4) in the *Sample* taken:

$$\text{Result} = \{[(V_S - V_B) \times N \times F]/W\} \times 100$$

V_S = volume of *Titrant* consumed by the *Sample* (mL)

V_B = volume of *Titrant* consumed by the *Blank* (mL)

N = actual normality of the *Titrant* (mEq/mL)

F = equivalency factor, 49.00 mg/mEq

W = weight of the *Sample* (mg)

Acceptance criteria: 85.0%–88.0% by weight

IMPURITIES

• **Limit of Nitrate**

Sample solution: Dilute 6 mL of Phosphoric Acid with 14 mL of water.

Analysis: Mix 5 mL of the *Sample solution* with about 0.1 mL of indigo carmine TS, then add 5 mL of sulfuric acid.

Acceptance criteria: The blue color is not discharged within 1 min.

SPECIFIC TESTS

• **Chloride and Sulfate, *Sulfate*⟨221⟩**

Sample solution: Dilute 6 mL of Phosphoric Acid with 90 mL of water.

Analysis: To the *Sample solution* add 1 mL of barium chloride TS.

Acceptance criteria: No precipitate is formed immediately.

• **Alkali Phosphates**

Sample: 1 mL

Analysis: Transfer the *Sample* to a graduated cylinder, and add 6 mL of ether and 2 mL of alcohol.

Acceptance criteria: No turbidity is produced.

• **Phosphorous or Hypophosphorous Acid**

Sample solution: Dilute 6 mL of Phosphoric Acid with 14 mL of water.

Analysis: Gently warm 5 mL of the *Sample solution*, and add 2 mL of silver nitrate TS.

Acceptance criteria: The mixture does not become brownish.

ADDITIONAL REQUIREMENTS

• **Packaging and Storage:** Preserve in tight containers.

Auxiliary Information - Please check for your question in the FAQs before contacting USP.

Topic/Question	Contact	Expert Committee
PHOSPHORIC ACID	Documentary Standards Support	SE2020 Simple Excipients
REFERENCE STANDARD SUPPORT	RS Technical Services RSTECH@usp.org	SE2020 Simple Excipients

Chromatographic Database Information: Chromatographic Database

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