D. MONOGRAPHS

Disodium Hydrogen Phosphate

Sodium Phosphate, Dibasic

$Na_2HPO_4 \cdot nH_2O$ (n=12, 10, 8, 7, 5, 2 or 0) Mol. Wt. dodecahydrate 358.14
anhydrous 141.96
disodium monohydrogen phosphate 〔anhydrous 7558-79-4〕

Definition Disodium Hydrogen Phosphate occurs as two forms: the crystal form (di-, penta-, hepta-, octa-, deca-, or dodecahydrate) called Disodium Hydrogen Phosphate (crystal) and the anhydrous form called Disodium Hydrogen Phosphate (anhydrous).

Content Disodium Hydrogen Phosphate, when dried, contains not less than 98.0% of disodium hydrogen phosphate (Na_2HPO_4).

Description Disodium Hydrogen Phosphate (crystal) occurs as colorless to white crystals or crystalline lumps. Disodium Hydrogen Phosphate (anhydrous) occurs as a white powder.

Identification Disodium Hydrogen Phosphate solution (1 → 20) responds to all tests for Sodium Salt and for Phosphate as described in the Qualitative Tests.

Purity For the crystal sample, dry before performing the test.

(1) Clarity and color of solution Colorless and almost clear (0.50 g, water 20 ml).

(2) pH 9.0—9.6 (1.0 g, water 100 ml).

(3) Chloride Not more than 0.21% as Cl (0.10 g, Control solution 0.01 mol/l hydrochloric acid 0.60 ml).

(4) Sulfate Not more than 0.038% as SO_4 (0.50 g, Control solution 0.005 mol/l sulfuric acid 0.40 ml).

(5) Heavy metals Not more than 20 μg/g as Pb.

Test Solution Weigh 1.0 g of Disodium Hydrogen Phosphate, dissolve in 30 ml of water, neutralize with diluted acetic acid (1 → 20), and add 2 ml of diluted acetic acid (1 → 20) and water to make 50 ml.

Control Solution Measure exactly 2 ml of Lead Standard Solution, add 2 ml of diluted acetic acid (1 → 20) and water to make 50 ml.

(6) Arsenic Not more than 4.0 μg/g as As_2O_3 (0.50 g, Method 1, Apparatus B).

Loss on Drying

Crystal Not more than 61.0% (40℃, 3 hours, then 120℃, 4 hours).

Anhydrous Not more than 2.0% (120℃, 4 hours).

Assay Weigh accurately about 3 g of Disodium Hydrogen Phosphate, previously dried, dissolve in 50 ml of water, keep at about 15℃, and titrate with 1 mol/l

hydrochloric acid (indicator: 2—3 drops of methyl orange—indigo carmine TS).

1 ml of 1 mol/l hydrochloric acid = 141.96 mg of Na_2HPO_4