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Edition: BP 2025 (Ph. Eur. 11.6 update)

Disodium Hydrogen Phosphate Dodecahydrate

General Notices

Disodium Hydrogen Phosphate

Sodium Phosphate

(Disodium Phosphate Dodecahydrate, Ph. Eur. monograph 0118)

$Na_2HPO_4,12H_2O$ 358.1 *10039-32-4*

Preparation

Phosphates Enema

Ph Eur

DEFINITION

Content

98.5 per cent to 102.5 per cent.

CHARACTERS

Appearance

Colourless, transparent crystals, very efflorescent.

Solubility

Freely soluble in water, practically insoluble in ethanol (96 per cent).

IDENTIFICATION

A. Solution S (see Tests) is slightly alkaline (*2.2.4*).
B. Loss on drying (see Tests).
C. Solution S gives reaction (b) of phosphates (*2.3.1*).
D. Solution S gives reaction (a) of sodium (*2.3.1*).

TESTS

Solution S

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Dissolve 5.0 g in *distilled water R* and dilute to 50 mL with the same solvent.

Appearance of solution

Solution S is clear (*2.2.1*) and colourless (*2.2.2, Method II*).

Reducing substances

To 5 mL of solution S add 5 mL of *dilute sulfuric acid R* and 0.25 mL of a 3.2 g/L solution of *potassium permanganate R* and heat on a water-bath for 5 min. The colour of the permanganate is not completely discharged.

Monosodium phosphate

Maximum 2.5 per cent.

From the volumes of *1 M sodium hydroxide* (n_1 mL, n_2 mL and n_3 mL) used in the assay, calculate the following ratio:

$$\frac{}{}$$

This ratio is not greater than 0.025.

Chlorides (*2.4.4*)

Maximum 200 ppm.

To 2.5 mL of solution S add 10 mL of *dilute nitric acid R* and dilute to 15 mL with *water R*.

Sulfates (*2.4.13*)

Maximum 500 ppm.

To 3 mL of solution S add 2 mL of *dilute hydrochloric acid R* and dilute to 15 mL with *distilled water R*.

Iron (*2.4.9*)

Maximum 20 ppm.

Dilute 5 mL of solution S to 10 mL with *water R*.

Loss on drying (*2.2.32*)

57.0 per cent to 61.0 per cent, determined on 1.000 g by drying in an oven at 130 °C for 4 h.

ASSAY

Dissolve 4.000 g (*m*) in 25 mL of *water R* and add 25.0 mL of *1 M hydrochloric acid*. Carry out a potentiometric titration (*2.2.20*) using *1 M sodium hydroxide*. Read the volume added at the 1st inflexion point (n_1 mL). Continue the titration to the 2nd inflexion point (total volume of *1 M sodium hydroxide* required, n_2 mL). Carry out a blank titration (n_3 mL).

Calculate the percentage content of $Na_2HPO_4,12H_2O$ using the following expression:

$$\frac{}{}$$

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