



>>Entry Name: Sodium phosphate (Na(H₂PO₄))

ENTRY UNDER REVIEW

Synonym(s): Monosodium phosphate, 9CI, 8CI. Sodium dihydrogen phosphate. Sodium phosphate monobasic, USAN

CAS Registry Number: 7558-80-7

Related CAS Registry Numbers(s): 7632-05-5 10028-24-7

Na(H₂PO₄)

Molecular Formula: H₂NaO₄P

Molecular Weight: 119.977

Accurate Mass: 119.958839

OPO 104.0-118.5°

Source/Synthesis: Synth. by neutralisation of aq. H₃PO₄ by Na₂CO₃ or NaOH, or by acidification of Na₃PO₄ with H₂SO₄

Use/Importance: Urinary acidifier. Used to treat hypophosphataemia. Pharmaceutical excipient (buffering and sequestering agent). Commercially available

Physical Description: Colourless monoclinic cryst.

Solubility: V. sol. H₂O (95 g per 100 cm³ at 25°; 196 g per 100 cm³ at 70°)

Other Data: Loses structural H₂O at 200-240° → Na₂H₂P₂O₇

Hazard & Toxicity: Eye irritant (hmn data). LD₅₀ (rat, orl) 8290 mg/kg

Aldrich: 22990-3

Fluka: 71496

Sigma: S8282

>>Derivative: Monohydrate

CAS Registry Number: 10049-21-5

Molecular Formula: H₄NaO₅P

Molecular Weight: 137.992

Accurate Mass: 137.969404

Percentage Composition: H 2.92%; Na 16.66%; O 57.97%; P 22.45%

Physical Description: Colourless prisms (H₂O), stable at r.t.

Solubility: V. sol. H₂O; sl. sol. Et₂O

Other Data: Exists in two forms, the normal one being orthorhombic, and in which chains of Na coordination octahedra share edges developing channels occupied by PO₄ tetrahedra. Whole system H-bonded. P-O 155.2 pm. Dehydrates at 67-130°

Aldrich: 22352-2

Fluka: 71508

Sigma: S9638

>>Derivative: Dihydrate

CAS Registry Number: 13472-35-0

Molecular Formula: H₆NaO₆P

Molecular Weight: 156.007

Accurate Mass: 155.979969

Percentage Composition: H 3.88%; Na 14.74%; O 61.53%; P 19.85%

Physical Description: Colourless cryst. of variable form (H₂O) which lose H₂O at r.t. in dry air → monohydrate

Other Data: Orthorhombic unit cell. PO₄ tetrahedra are linked by H-bonds to a distorted diamond-shaped framework of pseudo-hexagonal channels, the layer accommodating a chain of Na coordination octahedra. P-O 155.1 pm. P-O(H) 114.6, 119.2 pm

Fluka: 71505

>>Derivative: Tetrahydrate

Other Data: Claimed to be stable at -20°

References: