



>>Entry Name: Magnesium phosphate (Mg(HPO₄))

ENTRY UNDER REVIEW

Synonym(s): Magnesium phosphate (1:1), 9Cl, 8Cl. Magnesium hydrogenphosphate. Phosphoric acid, magnesium salt (1:1), 8Cl

CAS Registry Number: 7757-86-0

Related CAS Registry Numbers(s): 19154-49-5 38894-14-3

Extra CAS Registry Numbers(s): 10043-83-1

Mg(HPO₄)

Molecular Formula: HMgO₄P

Molecular Weight: 120.284

Accurate Mass: 119.946289

Percentage Composition: H 0.84%; Mg 20.21%; O 53.21%; P 25.75%

Use/Importance: Agricultural fertiliser

Biological Use/Importance: Laxative-cathartic. Electrolyte replenisher

Physical Description: Dec. on heating to 650° with evolution of H₂O and formation of Mg₂P₂O₇

Other Data: In addition to the tri- and hepta-hydrates, a monohydrate and a hexahydrate have been reported

>>Derivative: Trihydrate

CAS Registry Number: 7782-75-4

Source/Synthesis: Formed from the tetrahydrate of Magnesium phosphate (Mg(H₂PO₄)₂) [HTN53-E](#) at pH 2.5; from Mg(OH)₂ + H₃PO₄ at H 4.5-6.0; or from MgCO₃ + H₃PO₄. Cryst. from aq. solns. containing MgCl₂ and [NH₄]H₂PO₄

Use/Importance: Constituent of human and animal calculi, but significance controversial. Commercially available

Physical Description: Diamond-shaped rhombs.

Solubility: Sol. acids; spar. sol. H₂O

Other Data: Loses 3H₂O at 130-300°, and 0.5 H₂O at 300-580° depending on heating rate, with formation of Mg₂P₂O₇ before much water driven off. Can lose 2.4 H₂O during vacuum drying. Orthorhombic. At pH 7.9 → Magnesium phosphate (Mg₃(PO₄)₂) [HTM94-M](#). Cryst. struct. possesses markedly distorted PO₄³⁽⁻⁾ tetrahedra, layers of which alternate with octahedrally coordinated Mg ions. Loses H₂O on grinding

Aldrich: 34075-8

Fluka: 63080

Sigma: M1265

>>Derivative: Heptahydrate

CAS Registry Number: 13446-22-5

Source/Synthesis: Synth. from MgO + P₄O₁₀ in aq. soln. at >23°; or from MgCl₂ + Na₂HPO₄ aq.

Physical Description: Long, colourless prisms

Solubility: Sol. acids; spar. sol. H₂O; insol. EtOH

Other Data: Easily loses 4H₂O

>>Variant: Mineral-form

Synonym(s): Newberyite

CAS Registry Number: 14654-11-6

Molecular Formula: HMgO₄P

Molecular Weight: 120.284

Accurate Mass: 119.946289

Percentage Composition: H 0.84%; Mg 20.21%; O 53.21%; P 25.75%

Source/Synthesis: Found in guano, Chile

Physical Description: Short colourless, transparent prismatic or tubular cryst. with vitreous lustre

Other Data: Closely related is Hannayite

>>Variant: Mineral-form

Synonym(s): Phosphorrosslerite. Phosphoroesslerite

CAS Registry Number: 14654-10-5

Molecular Formula: HMgO₄P

Molecular Weight: 120.284

Accurate Mass: 119.946289

Percentage Composition: H 0.84%; Mg 20.21%; O 53.21%; P 25.75%

Source/Synthesis: Found in Austria

Physical Description: Normally pale yellowish, monoclinic prismatic cryst. with vitreous lustre (when fresh)

Other Data: Readily loses 4H₂O