



>>Entry Name: Iron phosphate (Fe₃(PO₄)₂)

Synonym(s): Iron(2+) phosphate (3:2), 9Cl, 8Cl. Ferrous phosphate. Ferrous orthophosphate

CAS Registry Number: 14940-41-1

Related CAS Registry Numbers(s): 10028-23-6 31096-55-6

Extra CAS Registry Numbers(s): 10402-24-1

Fe₃(PO₄)₂

Molecular Formula: Fe₃O₈P₂

Molecular Weight: 357.484

Accurate Mass: 357.711661

Percentage Composition: Fe 46.87%; O 35.80%; P 17.33%

Source/Synthesis: Synth. from FePO₄ + Fe at 800°

Fluka: 44963

>>Derivative: Monohydrate

CAS Registry Number: 55831-88-4

Source/Synthesis: Synth. from octahydrate at 230° and 400 atm. Cryst. spontaneously at >130°

Physical Description: Pale green cryst.

Other Data: Framework formed by edge or corner linking of Fe(1) and Fe(3) octahedra, of distorted Fe(2) quinquahedra, and PO₄ tetrahedra. Fe-O 208-216 pm, P-O 154-155 pm. Stable at < 260°

>>Derivative: Dihydrate

CAS Registry Number: 63919-98-2

Source/Synthesis: Cryst. spontaneously under basic hydrothermal conditions from octahydrate and (NH₄)₂CO₃ at 100°

Physical Description: White powder

>>Derivative: Trihydrate

CAS Registry Number: 54864-45-8

Source/Synthesis: Synth. by dehydration of octahydrate. Also from Na₂HPO₄·12H₂O, (NH₄)OAc, and Mohr's salt

Physical Description: Pale green cryst.

Other Data: Struct. consists of sheets of corner and edge linked oxygen octahedra. The PO₄ tetrahedra are linked to them by corner sharing. P-O 154.4 (mean), Fe-O 216-217 pm

>>Derivative: Tetrahydrate

CAS Registry Number: 16634-31-4

Other Data: Ferromagnetic below Curie temp. (4K). Fe octahedrally coord. by oxygen. Paramagnetic at r.t. with Fe-O. Monoclinic

>>Derivative: Octahydrate

CAS Registry Number: 10028-23-6

Source/Synthesis: Synth. by heating monohydrate of Ammonium iron(2+) phosphate (1:1:1) [HTM57-D](#) to 80°

Physical Description: Colourless cryst.

Other Data: Loses 5H₂O at 100-175°, and further 3H₂O at 175-400°. Antiferromagnetic. The H₂O molecules coordinated by the cation are non-equiv. At 80° Fe²⁽⁺⁾ ions occupy two different sites (in ratio 2:1) in Fe₂O₆(OH₂)₄ double octahedra and FeO₂(H₂O)₄ octahedra. Monoclinic

>>Variant: Mineral-form

Synonym(s): Ludlamite

CAS Registry Number: 14567-74-9

Molecular Formula: Fe₃O₈P₂

Molecular Weight: 357.484

Accurate Mass: 357.711661

Percentage Composition: Fe 46.87%; O 35.80%; P 17.33%

Source/Synthesis: Found in Brazil, USA (S. Dakota, New Hampshire), and Europe (U.K., Germany). Generally associated with Vivianite

Physical Description: Bright green, translucent prisms with vitreous lustre

>>Variant: Mineral-form

Synonym(s): Phosphoferrite