



>>Entry Name: Magnesium pyrophosphate

Synonym(s): Magnesium diphosphate (2:1), 9Cl, 8Cl

CAS Registry Number: 13446-24-7

Related CAS Registry Numbers(s): 10102-34-8 22464-74-0

Extra CAS Registry Numbers(s): 19262-94-3

$\text{Mg}_2[\text{P}_2\text{O}_7]$

Molecular Formula: $\text{Mg}_2\text{O}_7\text{P}_2$

Molecular Weight: 222.553

Accurate Mass: 221.882013

Percentage Composition: Mg 21.84%; O 50.32%; P 27.83%

Source/Synthesis: Various hydrates obt. eg. from MgCl_2 aq. + Sodium diphosphate ($\text{Na}_4(\text{P}_2\text{O}_7)$) [HTW34-S](#) aq.

Use/Importance: Employed in gravimetric est. of Mg, following ignition of Ammonium magnesium phosphate (1:1:1) [HTM58-E](#) at 1000-1100°

Aldrich: 41522-7

>>Derivative: Dihydrate

CAS Registry Number: 80744-42-9

Source/Synthesis: Obt. from trihydrate of Calcium phosphate ($\text{Ca}(\text{HPO}_4)$) [HTM70-C](#). at 350-500°

Other Data: Diphosphate anions are linked by two kinds of Mg cations. Each has 6 nearest oxygens in infinite chains of edge sharing sl. distorted MgO_6 octahedra

>>Derivative: Tetrahydrate

CAS Registry Number: 34431-48-6

Source/Synthesis: Obt. from $\text{MgH}_2\text{P}_2\text{O}_7$ in H_2O at 80-90°

>>Derivative: Pentahydrate

CAS Registry Number: 90906-73-3

Source/Synthesis: Synth. from $\text{Mg}(\text{NO}_3)_2$ + Potassium diphosphate ($\text{K}_4(\text{P}_2\text{O}_7)$) [HTW33-R](#) aq. with $\text{P}_2\text{O}_7^{4(-)}/\text{Mg}^{2(+)} = 0.25-0.67$ for 1.5M solns.

>>Derivative: Octahydrate

CAS Registry Number: 90906-72-2

Source/Synthesis: Synth. from $\text{Mg}(\text{NO}_3)_2$ + Potassium diphosphate ($\text{K}_4(\text{P}_2\text{O}_7)$) [HTW33-R](#) aq. with $\text{P}_2\text{O}_7^{4(-)}/\text{Mg}^{2(+)} = 0.05$ for 1.5M solns.

>>Variant: α -form

Synonym(s): Low temp.-form

Molecular Formula: $\text{Mg}_2\text{O}_7\text{P}_2$

Molecular Weight: 222.553

Accurate Mass: 221.882013

Percentage Composition: Mg 21.84%; O 50.32%; P 27.83%

Source/Synthesis: Obt. from hexahydrate of Ammonium magnesium phosphate (1:1:1) [HTM58-E](#) at 1000°, and slow cooling of the melt

Physical Description: Colourless plates

Other Data: At 63° $\rightarrow$ β -form

>>Variant: β -form

Molecular Formula: $\text{Mg}_2\text{O}_7\text{P}_2$

Molecular Weight: 222.553

Accurate Mass: 221.882013

Percentage Composition: Mg 21.84%; O 50.32%; P 27.83%

Source/Synthesis: Obt. from α -form at 95°

References: