



>>Entry Name: Lithium phosphate (Li₃PO₄)

Synonym(s): Trilithium phosphate, 9Cl, 8Cl. Lithium orthophosphate (Li₃PO₄)

CAS Registry Number: 10377-52-3

Related CAS Registry Numbers(s): 10102-26-8 24270-60-8 26837-79-6

Li₃PO₄

Molecular Formula: Li₃O₄P

Molecular Weight: 115.794

Accurate Mass: 116.001431

Percentage Composition: Li 17.98%; O 55.27%; P 26.75%

Source/Synthesis: Prepd. by slow neutralisation of Li₂CO₃ with H₃PO₄

Use/Importance: Commercially available

Physical Description: Colourless transparent cryst.

Solubility: V. sl. sol. H₂O (0.03 g per 100 cm³ at 25°); insol. Me₂CO

Other Data: ΔH_f° -2094 kJ mol⁻¹

Hazard & Toxicity: Irritant

Aldrich: 33889-3

Sigma: L3658

>>Variant: α -form

Molecular Formula: Li₃O₄P

Molecular Weight: 115.794

Accurate Mass: 116.001431

Percentage Composition: Li 17.98%; O 55.27%; P 26.75%

Source/Synthesis: Synth. from LiCl + Na₃PO₄ aq.

Melting Point: Mp 857°

Other Data: At 502° → β -form. Isostructural with the mineral Lithiophosphatite

>>Variant: β -form

Molecular Formula: Li₃O₄P

Molecular Weight: 115.794

Accurate Mass: 116.001431

Percentage Composition: Li 17.98%; O 55.27%; P 26.75%

Source/Synthesis: Synth. from Li₂CO₃ + [NH₄]H₂PO₄ at 900°

Other Data: At 1167° → γ -form

>>Variant: γ -form

Molecular Formula: Li₃O₄P

Molecular Weight: 115.794

Accurate Mass: 116.001431

Percentage Composition: Li 17.98%; O 55.27%; P 26.75%

Source/Synthesis: Obt. from β -form at >1170°

Melting Point: Mp 1220° (1206°)

>>Variant: Mineral-form

Synonym(s): Lithiophosphate

Molecular Formula: Li₃O₄P

Molecular Weight: 115.794

Accurate Mass: 116.001431

Percentage Composition: Li 17.98%; O 55.27%; P 26.75%

Source/Synthesis: Mineral occurs as a hydrothermal replacement of Montebasite at sites in U.S.A. and U.S.S.R

Physical Description: Colourless to rose pink cryst.

References: