



>>Entry Name: (Diphenylphosphino)lithium, 10Cl

Synonym(s): Diphenylphosphine lithium salt, 8Cl. Lithium diphenylphosphide. LDP

CAS Registry Number: 4541-02-0

Related CAS Registry Numbers(s): 65567-06-8

Ph₂PLi

Molecular Formula: C₁₂H₁₀LiP

Molecular Weight: 192.126

Accurate Mass: 192.068015

Percentage Composition: C 75.02%; H 5.25%; Li 3.61%; P 16.12%

Source/Synthesis: Synth. from Ph₃P + Li or from LiPh + PPh₂H in C₆H₆ under N₂

Use/Importance: Reagent for introduction of Ph₂P ligand, and for dehydroxylation

Physical Description: Solid

Solubility: Sol. ethers

>>Derivative: Et₂O complex

CAS Registry Number: 60204-17-3

Molecular Formula: C₁₆H₂₀LiOP

Molecular Weight: 266.248

Accurate Mass: 266.14118

Percentage Composition: C 72.18%; H 7.57%; Li 2.61%; O 6.01%; P 11.63%

Physical Description: Yellow orthorhombic cryst. (Et₂O)

>>Derivative: Bis-THF complex

CAS Registry Number: 101225-32-5

Molecular Formula: C₂₀H₂₆LiO₂P

Molecular Weight: 336.339

Accurate Mass: 336.183045

Percentage Composition: C 71.42%; H 7.79%; Li 2.06%; O 9.51%; P 9.21%

Physical Description: Yellow monoclinic cryst. (Et₂O)

>>Derivative: TMED complex

Molecular Formula: C₁₈H₂₆LiN₂P

Molecular Weight: 308.331

Percentage Composition: C 70.12%; H 8.50%; Li 2.25%; N 9.09%; P 10.05%

Physical Description: Pale-yellow cryst. (hexane/toluene)

Other Data: Dimeric in solid state. Monomer-dimer equilibrium in C₆H₆ soln. Dec. at 196°

>>Derivative: Pentamethyldiethylenetriamine complex

Synonym(s): PMDETA complex

Molecular Formula: C₂₁H₃₃LiN₃P

Molecular Weight: 365.427

Percentage Composition: C 69.02%; H 9.10%; Li 1.90%; N 11.50%; P 8.48%

Physical Description: Pale-orange cryst. (toluene)

Melting Point: Mp 128°

Other Data: Monomeric in C₆H₆ soln.

References:

Issleib, K. *et al.*, *Z. Naturforsch., B*, 1959, **14**, 349, (*synth*)

Fluck, E. *et al.*, *Z. Anorg. Allg. Chem.*, 1965, **339**, 274, (*P-31 nmr*)

Fieser and Fieser's Reagents for Organic Synthesis, Wiley, 1967, **1**, 345; **2**, 179, (*synth, use*)

Inorg. Synth., 1977, **17**, 186, (*synth, use*)

Bartlett, R.A. *et al.*, *Inorg. Chem.*, 1986, **25**, 1243, (*cryst struct, derivs*)

Leone-Bay, A., *J.O.C.*, 1986, **51**, 2378, (*use*)

Mulvey, R.E. *et al.*, *Polyhedron*, 1987, **6**, 987, (*struct, Li-7 nmr, P-31 nmr, props*)