



>>Entry Name: Triisopropylphosphine, 8Cl  
Synonym(s): Tris(1-methylethyl)phosphine, 9Cl

CAS Registry Number: 6476-36-4

$\text{P}[\text{CH}(\text{CH}_3)_2]_3$

Molecular Formula:  $\text{C}_9\text{H}_{21}\text{P}$   
Molecular Weight: 160.239  
Accurate Mass: 160.138087  
Percentage Composition: C 67.46%; H 13.21%; P 19.33%  
Use/Importance: Reduces aldehydes and ketones to hydrocarbons  
Physical Description: Air-sensitive liq.  
Melting Point: Mp  $-72^\circ$   
Boiling Point: Bp  $176-178^\circ$ . Bp<sub>22</sub>  $81^\circ$   
Hazard & Toxicity: Vigorous reaction with peroxides, ozonides, *N*-oxides and also  $\text{CHCl}_3$   
  
Aldrich: 37730-9  
Fluka: 92093

>>Derivative: Methiodide  
Synonym(s): Triisopropylmethylphosphonium iodide

Molecular Formula:  $\text{C}_{10}\text{H}_{24}\text{IP}$   
Molecular Weight: 302.178  
Accurate Mass: 302.066035  
Percentage Composition: C 39.75%; H 8.01%; I 42.00%; P 10.25%  
Physical Description: Solid  
Melting Point: Mp  $360^\circ$

>>Derivative: Oxide

CAS Registry Number: 17513-58-5

Molecular Formula:  $\text{C}_9\text{H}_{21}\text{OP}$   
Molecular Weight: 176.238  
Accurate Mass: 176.133002  
Percentage Composition: C 61.34%; H 12.01%; O 9.08%; P 17.57%  
Physical Description: Liq. solidifying at r.t.  
Boiling Point: Bp<sub>12</sub>  $126-130^\circ$ . Bp<sub>0.8</sub>  $110-114^\circ$

>>Derivative: Sulfide

CAS Registry Number: 17513-59-6

Molecular Formula:  $\text{C}_9\text{H}_{21}\text{PS}$   
Molecular Weight: 192.305  
Accurate Mass: 192.110157  
Percentage Composition: C 56.21%; H 11.01%; P 16.11%; S 16.67%  
Physical Description: Solid  
Melting Point: Mp  $35^\circ$

#### References:

- Aldrich Library of  $^{13}\text{C}$  and  $^1\text{H}$  FT NMR Spectra*, 1992, **1**, 1460A, (*nmr*)  
Davies, W.C., *J.C.S.*, 1933, 1043, (*synth*)  
Fluck, E. *et al.*, *Z. Naturforsch., B*, 1967, **22**, 1095, (*P-31 nmr, derivs*)  
Cowley, A.H. *et al.*, *J.A.C.S.*, 1969, **91**, 2915, (*synth, ir, pmr*)  
*Fieser and Fieser's Reagents for Organic Synthesis*, Wiley, 1974, **4**, 356; 1992, **16**, 360, (*use*)  
Kincaid, J. *et al.*, *Spectrochim. Acta A*, 1974, **30**, 2091, (*oxide, sulfide, synth, ir, pmr, complexes*)  
Petrushanskaya, N.V. *et al.*, *Zh. Org. Khim.*, 1974, **10**, 1402; *J. Org. Chem. USSR (Engl. Transl.)*, 1974, **10**, 1414, (*use, complexes*)  
Chervin, I.I. *et al.*, *Izv. Akad. Nauk SSSR, Ser. Khim.*, 1981, **30**, 1769; *Bull. Acad. Sci. USSR, Div. Chem. Sci. (Engl. Transl.)*, 1981, **30**, 1438, (*P-31 nmr*)  
Inoue, H. *et al.*, *Z. Naturforsch., B*, 1985, **40**, 22, (*P-31 nmr, Mössbauer*)  
Kuhn, N. *et al.*, *Z. Naturforsch., B*, 1990, **45**, 1010, (*selenide, telluride, pmr, cmr, P-31 nmr, Se-77 nmr, Te-127 nmr*)  
Bretherick, L., *Handbook of Reactive Chemical Hazards*, 4th edn., Butterworths, 1990, 3011