



>>Entry Name: Tetrakis(triphenyl phosphite-*P*)nickel(0), 10Cl, 9Cl
Synonym(s): Tetrakis(phosphorous acid)nickel dodecaphenyl ester, 8Cl

CAS Registry Number: 14221-00-2

$\text{Ni}[\text{P}(\text{OPh})_3]_4$ (T_d)

Molecular Formula: $\text{C}_{72}\text{H}_{60}\text{NiO}_{12}\text{P}_4$

Molecular Weight: 1299.844

Accurate Mass: 1298.238874

Percentage Composition: C 66.53%; H 4.65%; Ni 4.52%; O 14.77%; P 9.53%

Source/Synthesis: Synth. from $\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O} + \text{P}(\text{OPh})_3 + \text{NaBH}_4$

Use/Importance: Commercially available. Initiator for polymerisation reactions, catalyst for alkene additions. Catalyses addn. of HCN to unsatd. molecules. Catalyst for Heck reaction of aryl and vinyl halides with alkenes and alkynes

Physical Description: Cryst. ($\text{MeOH}/\text{C}_6\text{H}_6$)

Melting Point: Mp 151-152°

Hazard & Toxicity: Cancer suspect agent, irritant

Aldrich: 28806-3

References:

Inorg. Synth., 1967, **9**, 181; 1990, **28**, 98-104, (*synth*)

Levison, J.J. *et al.*, *J.C.S.(A)*, 1970, 96, (*synth, nmr*)

Brauer, G., *Handbuch Prap. Anorg. Chem.*, 3rd edn., Ferdinand Enke Verlag, 1975, **3**, 2013, (*synth*)

Fieser and Fieser's Reagents for Organic Synthesis, Wiley, 1979, **7**, 354, (*use*)

Jackson, W.R. *et al.*, *Aust. J. Chem.*, 1983, **36**, 1475, (*use*)

Bobadilla, M. *et al.*, *Z. Naturforsch., B*, 1983, **38**, 1069, (*use*)

Bäckvall, J.-E. *et al.*, *Chem. Comm.*, 1984, 260, (*use*)

Encyclopaedia of Reagents for Organic Synthesis, (ed. Paquette, L.A.), Wiley, 1995, **7**, 4796-4797, (*use, rev*)

Synthetic Methods of Organometallic and Inorganic Chemistry, (ed. Hermann, W.A.), Thieme, 1997, **7**, 73-74, (*synth*)

Iyer, S. *et al.*, *Tet. Lett.*, 1997, **38**, 8533-8536, (*use, Heck reaction*)