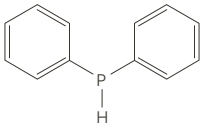
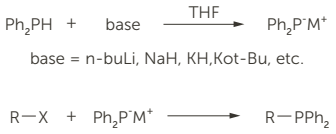
Diphenylphosphine

Product number: 312 | Alternative name: Ph_2PH | CAS number: 829-85-6 | $C_{12}H_{11}P$ | Molecular weight: 186.20

Ph_2PH is a clear and colorless air sensitive pyrophoric liquid (b.p. 280°C [536°F]) that should be handled under inert atmosphere at all times. Ph_2PH has been used extensively for the synthesis of phosphine ligands, but it recently has found uses as a base (pK_a = 21.7).[1]

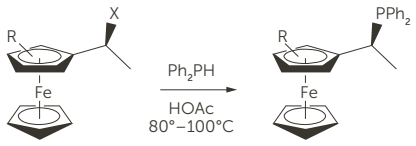


DIPHENYLPHOSPHIDE NUCLEOPHILIC ADDITIONS [2–4]



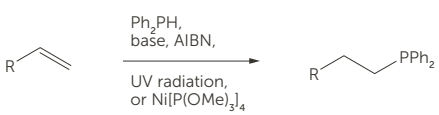
R = alkyl, aryl
X = halide, sulfonate

S_N1-ADDITION OF PSEUDO-BENZYLIC AMINES AND ACETATES [5,6]



X = OAc, NMe_2 *71 – 90% yields*
R = H, aryl, phosphine

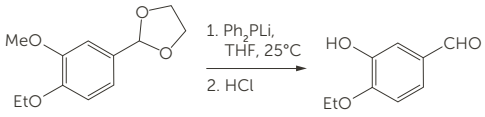
HYDROPHOSPHONYLATION OF ALKENES [3,7–9]



R = alkyl, aryl, amides, esters phosphines, silanes, pyridines, sulfides, ethers

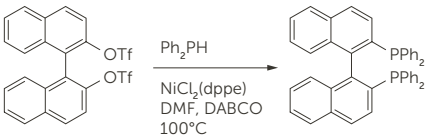
61 – 96% yields

SELECTIVE DEMETHYLATION OF ANISOL SUBSTRATES [10]



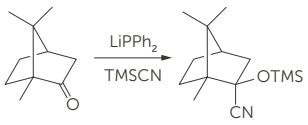
87 – 88% yields

TRANSITION-METAL CATALYZED CARBON-PHOSPHORUS BOND COUPLING [11]



75% yields

PHOSPHIDE-ACCELERATED DIASTEREOSELECTIVE CYANATIONS OF KETONES [12]



>99% yield
>96% endo

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