

Synthesis and ambiphilic reactivity of metalated diorganophosphonite boranes

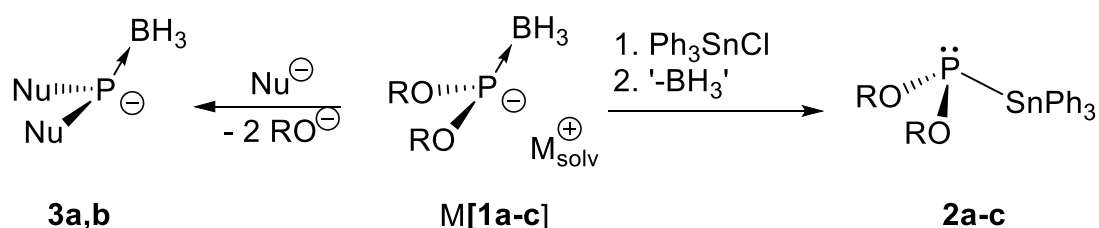
Thomas D. Hettich,^a Richard Rudolf,^a Christoph M. Feil,^a Nicholas Birchall,^a Martin Nieger,^b Dietrich Gudat^a

^a Institute of Inorganic Chemistry, University of Stuttgart, Germany. ^b Department of Chemistry, University of Helsinki, Finland.

thomas.hettich@iac.uni-stuttgart.de

Salt metathesis of metal phosphides with various types of electrophiles is a common approach of the synthesis of phosphines. This approach is usually applied to alkyl-, and arylphosphines restricted by the low accessibility to nucleophilic synthons of N-, and O-substituted phosphines. Pioneering work by Knochel et al.^[1] demonstrated the *in situ* metalation and electrophilic substitution of secondary diaminophosphines via the borane adduct of diaminochlorophosphine and lithium-naphthalenide inspiring recent efforts depicting spectroscopic and structural data of metalated diaminophosphine boranes.^[2,3]

Despite their widespread application as ligands in transition metal catalysis, there are only sparse records of P-metalated diorganophosphonites and its borane adducts.^[4–6] We report here on new phosphinite boranes and the investigation of their unique reactivity. Reaction of alkali metal hexamethylsilazides with phosphinite boranes cleanly afforded metalated phosphides M[**1a-c**], which easily undergo nucleophilic substitution of Ph₃SnCl. In addition, P-O bond cleavage was observed with other nucleophiles or under intermolecular self-condensation, demonstrating ambiphilic behaviour.



R = Ethyl (a), Isopropyl (b), 2,6-Diisopropylphenyl (c), M = Li, K, Nu[⊖] = Li[a,b], Bu[⊖]

Figure 1: Schematic overview of the ambiphilic reactivity of P-metalated phosphonite boranes

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