Lithium Bis(triisopropylsilyl)phosphanide and its Pentacarbonyltungsten Adduct: Synthesis and Crystal Structures of the Dimer \([(\text{thf})\text{Li}-\text{P(Si} \text{Pr}_3)_2]_2\) and the Solvent-Separated Ion Pair \([(\text{thf})_4\text{Li}]^+ [(\text{OC})_5\text{W-P(Si} \text{Pr}_3)_2]^-\)

Matthias Westerhausen\(^a\), Thomas Rotter\(^a\), Helmar Görls\(^b\), Christin Birg\(^c\), Marcus Warchhold\(^c\), and Heinrich Nöth\(^c\)

\(^a\) Institute of Inorganic and Analytical Chemistry, Friedrich-Schiller-Universität Jena, August-Bebel-Str. 2, D-07743 Jena, Germany
\(^b\) Institute of Inorganic and Analytical Chemistry, Friedrich-Schiller-Universität Jena, Lessingstr. 8, D-07743 Jena, Germany
\(^c\) Department of Chemistry and Biochemistry, Ludwig-Maximilians-Universität München, Butenandtstr. 9, D-81377 Munich, Germany

Reprint requests to Prof. Dr. M. Westerhausen. E-mail: m.we@uni-jena.de

Z. Naturforsch. 60b, 766 – 770 (2005); received April 18, 2005

The lithiation of bis(triisopropylsilyl)phosphanide with \(n\)-butyllithium in THF gave quantitatively dimeric \((\text{thf})\text{Li-P(Si} \text{Pr}_3)_2\) (1) with three-coordinate lithium atoms. The molecular structure of 1 shows Li-P bond lengths of 253.3(6) pm. In order to obtain the pentacarbonyltungsten complex of the sterically demanding phosphanide, \((\text{thf})\text{W(CO)}_5\) was reacted with \((\text{thf})\text{Li-P(Si} \text{Pr}_3)_2\) in THF. The resulting solvent-separated complex \([(\text{thf})_4\text{Li}]^+ [(\text{OC})_5\text{W-P(Si} \text{Pr}_3)_2]^-\) (2) was structurally characterized and shows a very large W-P distance of 266.65(7) pm.

Key words: Phosphanes, Bis(triisopropylsilyl)phosphanides, Solvent-Separated Complex, Lithium Phosphanides, Pentacarbonyltungsten Complexes