Organometallic Compounds of the Lanthanides 169 [1]. Lanthanidocene Complexes Containing Chiral Nitrogen-Functionalized Cyclopentadienyl Ligands

Herbert Schumann, Katja Herrmann, and Frank Erbstein

Institut für Chemie, Technische Universität Berlin,
Straße des 17. Juni 135, D-10623 Berlin, Germany

Reprint requests to H. Schumann. E-mail: schumann@chem.tu-berlin.de

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$SmCl_3$ reacts with equimolar amounts of K[(*S*)-$C_5H_4CHPhCH_2NMe_2$] and Na[C_5Me_5] yielding [(*S*)-$C_5H_4CHPhCH_2NMe_2$](C_5Me_5)SmCl (**1**). The methylation of complex **1** with LiMe and the reactions of the known analogues of **1**, [(*S*)-$C_5H_4CHPhCH_2NMe_2$](C_5Me_5)LnCl (Ln = Y (**2**), Lu (**3**)) with $LiCH_2SiMe_3$ afford [(*S*)-$C_5H_4CHPhCH_2NMe_2$](C_5Me_5)SmMe (**4**) and [(*S*)-$C_5H_4CHPhCH_2NMe_2$](C_5Me_5)$LnCH_2SiMe_3$ (Ln = Y (**5**), Lu (**6**)), respectively. The reactions of $ScCl_3$ and $LuCl_3$ with 1 equivalent of K[(*S*)-$C_5H_4CHPhCH_2NMe_2$] or K[$C_5H_4CH_2CH_2NMe_2$] followed by 2 equivalents of Me_3SiCH_2Li yield the complexes [(*S*)-$C_5H_4CHPhCH_2NMe_2$] $Ln(CH_2SiMe_3)_2$ (Ln = Sc (**7a**), Lu (**7b**)) or ($C_5H_4CH_2CH_2NMe_2$)$Ln(CH_2SiMe_3)_2$ (Ln = Sc (**8a**), Lu (**8b**)), respectively.

Key words: Lanthanidocenes, Nitrogen-Functionalized Cyclopentadienyl Ligands, Scandium, Yttrium, Samarium, Lutetium