Reaktionen der Lithiumhydridosilylamide $\text{Me}_2(\text{H})\text{Si-N(Li)}\text{R}$ (R = CMe₃, SiMe₃) mit Chlortrimethylstannan und Chlormethylsilanen $\text{Me}_{4-n}\text{SiCl}_n$ ($n = 1 - 3$)

Reactions of Lithium Hydridosilylamides $\text{Me}_2(\text{H})\text{Si-N(Li)}\text{R}$ (R = CMe₃, SiMe₃) with Chlorotrimethylstannane and Chlormethylsilanes $\text{Me}_{4-n}\text{SiCl}_n$ ($n = 1 - 3$)

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The under reflux conditions in $n$-octane stable lithium hydridosilylamides $\text{Me}_2(\text{H})\text{Si-N(Li)}\text{R}$ (1: R = CMe₃, 2: SiMe₃) were allowed to react with chlorotrimethylstannane and chlormethylsilanes $\text{Me}_{4-n}\text{SiCl}_n$ ($n = 1 - 3$) in different molar ratios.

1 reacts with $\text{Me}_3\text{SnCl}$ in $n$-pentane to give the cyclodisilazane $[\text{Me}_2\text{Si-NCMe}_3]_2$ (3) and $\text{Me}_3\text{SnH}$. The reaction of 2 with $\text{Me}_3\text{SnCl}$ under the same conditions leads to a mixture of $\text{Me}_2(\text{H})\text{Si-N(SnMe}_3\text{)}\text{SiMe}_3$ (5), $[\text{Me}_2\text{Si-NSiMe}_3]_2$ (4), and to $\text{Me}_3\text{SnH}$. In the reactions of 1 and 2 with chlorotrimethylstannane in tetrahydrofuran the corresponding N-stannylation products $\text{Me}_2(\text{H})\text{Si-N(SnMe}_3\text{)}\text{R}$ 5, 6 and very small amounts of ($\text{Me}_3\text{Sn})_2$ are formed.

The results of the reactions of 1 and 2 with $\text{Me}_2\text{SiCl}_2$ and of 1 with $\text{MeSiCl}_3$ in $n$-hexane show that hydrogen-chlorine-exchange proceeds between the reactants. With $\text{Me}_2\text{SiCl}_2$ the corresponding cyclodisilazanes $[\text{Me}_2\text{Si-NR}]_2$ 3, 4, N-silylation products $\text{Me}_2(\text{H})\text{Si-N(SiMe}_2\text{Cl)}\text{R}$ 7b, 8b, and $\text{Me}_2(\text{H})\text{Si-N(SiMe}_2\text{H)}\text{R}$ 7c, 8c, and the silanes $\text{Me}_2\text{SiHCl}$ and $\text{Me}_2\text{SiH}_2$ are formed, the cyclodisilazanes being the main products. 1 and $\text{MeSiCl}_3$ produce 3, $\text{Me}_2(\text{H})\text{Si-N(R')}\text{CMe}_3$ (7d: R' = SiMeCl₂, 7e: R' = SiMeCH₂, 7f: R' = SiMeH₂) and $\text{MeSiH}_3$. In comparison with the reaction of 1 with $\text{Me}_2\text{SiCl}_2$ the yield of cyclodisilazane is smaller and that of N-silylated compounds is higher. The reaction behaviour of 1 towards $\text{Me}_2\text{SiCl}_2$ and $\text{MeSiCl}_3$ in THF is comparable to that in $n$-hexane.

No silanimine intermediates are observed in the reactions of 1 or 2 with the chlormethylsilanes $\text{Me}_{4-n}\text{SiCl}_n$ ($n = 1 - 3$) in the molar ratios 1:5 and 1:10.