

Reaktionen von Lithiumhydridosilylamiden mit Carbonylverbindungen und Gemischen von Carbonylverbindungen und Chlorotrimethylsilan

Reactions of Lithium Hydridosilylamides with Carbonyl Compounds and Mixtures of Carbonyl Compounds and Chlorotrimethylsilane

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The lithium hydridosilylamides $\text{Me}_2(\text{H})\text{SiN}(\text{Li})\text{R}$ (**1**: $\text{R} = \text{CMe}_3$, **2**: $\text{R} = \text{SiMe}_3$) were allowed to react either with the non-enolizable carbonyl compounds $\text{CH}_2=\text{C}(\text{Me})\text{CHO}$, PhCHO and Ph_2CO followed by trapping with chlorotrimethylsilane (**A**), or with mixtures of these carbonyl compounds and chlorotrimethylsilane (**B**). In the second case the course of the reactions is determined by the carbonyl compound. The composition of the reaction mixtures is nearly the same according to **A** and **B**.

Main products in the reactions with the aldehydes are the corresponding imines $\text{R}'\text{CH}=\text{NR}$ ($\text{R}' = \text{CH}_2=\text{C}(\text{Me})$, Ph) **3**, **4**, **8**, **9** formed by addition of the hydridosilylamides to the $\text{C}=\text{O}$ group of the aldehydes and subsequent $\text{LiOSiMe}_2\text{H}$ elimination. Partial hydrosilylation of the aldehydes by the hydridosilanolate followed by the trimethylsilylation yields the alkoxydisiloxanes $\text{R}'\text{CH}_2\text{OSiMe}_2\text{OSiMe}_3$ **6**, **11**. In some cases **2** partially reacts under hydrosilylation to give the alkoxydisilazanes $\text{R}'\text{CH}_2\text{OSiMe}_2\text{NHSiMe}_3$ **7**, **12**.

The hydrosilylation is the preferred reaction of **1** and **2** with benzophenone. The compounds $\text{Ph}_2\text{CHOSiMe}_2\text{NHR}$ **13**, **14** are obtained. This difference in the reaction behaviour of **1** and **2** towards the aldehydes and benzophenone is mainly due to steric reasons. Depending on the conditions the imines $\text{Ph}_2\text{C}=\text{NR}$ **20**, **21** may be formed. $\text{Ph}_2\text{CHOSiMe}_2\text{OSiMe}_3$ (**22**) is a secondary product of imine formation.

In all reactions of **1** and **2** with the carbonyl compounds the corresponding alkoxy silanes $\text{R}'\text{CH}_2\text{OSiMe}_3$ (**5**: $\text{R}' = \text{CH}_2=\text{C}(\text{Me})$, **6**: $\text{R}' = \text{Ph}$) and $\text{Ph}_2\text{CHOSiMe}_3$ (**15**) are generated.

Compounds resulting from a reaction of **1** and **2** with chlorotrimethylsilane are produced to minor extent, but only if the molar ratio of amide to carbonyl compounds is not greater than one. The formation of a silanimine intermediate in reaction according to **B** is not observed.

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