

SiF-NH-Funktionelle Cyclodisilazane – Synthese und Reaktivität

SiF-NH-Functional Cyclodisilazane – Synthesis und Reactivity

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Dichlorosilanes with bulky substituents $R(\text{Me}_3\text{C})\text{SiCl}_2$ react with liquid ammonia to give geminal silyldiamines $[\text{R}(\text{Me}_3\text{C})\text{Si}(\text{NH}_2)_2]$, **1**: $R = \text{CH}_2\text{Me}$, **2**: $R = \text{CHMe}_2$. In the reaction of the monolithium derivatives of these compounds with halosilanes 1-amino-1.3-disilazanes are obtained $[(\text{NH}_2)(\text{Me}_3\text{C})\text{RSi-NH-SiR}_1\text{R}_2\text{R}_3]$; **3**: $R = \text{CMe}_3$, $R_1 = R_2 = R_3 = \text{Me}$; **4**: $R = R_1 = \text{CMe}_3$, $R_2 = R_3 = \text{Me}$; **5**: $R = R_1 = R_2 = \text{CMe}_3$, $R_3 = \text{H}$; **6**: $R = R_1 = \text{CMe}_3$, $R_2 = \text{Me}$, $R_3 = \text{F}$; **7**: $R = \text{CHMe}_2$, $R_1 = R_2 = R_3 = \text{Me}$. If monolithiated diamines are treated with trifluorosilanes cyclisation occurs to give $(\text{NH-Si}(\text{CMe}_3)_2\text{-NH-SiFR})$ cyclodisilazanes $[\text{R} = \text{N}(\text{SiMe}_3)(\text{CMe}_3)$ (**8**); $\text{R} = \text{N}(\text{SiMe}_2\text{CMe}_3)_2$ (**9**)]. 50% of the educts are recovered. The spirocyclic compound **10** is isolated from the reaction of the dilithiated 1-amino-1.3-disilazane **3** with $\text{F}_3\text{SiN}(\text{SiMe}_2\text{CMe}_3)_2$. NH-SiF-Functional cyclodisilazanes can be obtained in the reaction of the dilithium derivative of compound **4** with trifluorosilanes $[\text{N}(\text{SiMe}_2\text{CMe}_3)\text{-Si}(\text{CMe}_3)_2\text{-NH-SiFR}]$, $\text{R} = \text{Ph}$ (**11**); $\text{R} = \text{CMe}_3$ (**12**)]. The lithium derivative of **12** crystallises with TMEDA as adduct **13**. In the reaction of the lithiated compound **12** with Me_3SiCl , LiCl elimination and substitution of the N-atom is observed (**14**). The treatment of **13** with PhCHO leads to a 1.3-diaza-5-oxa-2.4-disila-cyclohexane (**15 a, b**). Starting from lithiated **12** the methoxy-substituted cyclodisiloxane **16** is accessible in the reaction with MeOH . As result of its reactivity towards Me_2SiF_2 the fluorosilyl-substituted cyclodisilazane **17** is obtained. Crystal structures of **9-11** and **13** have been determined.

Key words: Cyclodisilazanes, Spirocycle, Aldehyde-Insertion