Pyridine-promoted Cyclization of Functionalized N-Silylated Boron-Nitrogen Compounds

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Dichloroboryldisilylamines \( [\text{SiCl}_{m}(\text{CH}_3)_{3-m}]N[\text{Si(CH}_3)_3] \text{(BCl}_2) \) \((m = 1–3)\) as well as chloromethylboryl-bis-(chlorodimethylsilyl)amine \( [\text{SiCl}(\text{CH}_3)_2]_2N[\text{BCl(CH}_3)] \) form 1:1 adducts with pyridine (1–4). Those with \(m = 2\) and 3 have been converted into functionalized diazadiboretidine derivatives which are still coordinated by pyridine: \( [(\text{SiCl}_{m}(\text{CH}_3)_{3-m})\text{NBCl} \cdot \text{Py}]_2 \) \((5: m = 2, 6: m = 3)\). Single-crystal X-ray diffraction structure analyses confirm the presence of planar, rhombus-shaped, four-membered boron-nitrogen rings with tetra-coordinated boron atoms and nitrogen-bonded, chlorine-functionalized silyl groups, for both compounds.

Key words: Silazane Cleavage, Decomposition, Cyclization, Diazadiboretidine Derivatives, Crystal Structures