

Reactivity of $\text{SiBr}_2(\text{caac}^{\text{Me}})$ (caac^{Me} = Cyclic Alkylamino Carbene)

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$\text{SiX}_2(\text{NHC})$ (NHC = N-heterocyclic carbene, X = Cl, Br, I)^[1] bear a large synthetic potential, which has been demonstrated by many studies in recent years leading to a plethora of novel molecular silicon compounds containing reactive silicon centers for further functionalization and featuring unusual bonding motives.^[1c,2,3] Two most common types of reactions of $\text{SiX}_2(\text{NHC})$ are – (i) substitution reactions of the NHC or halide ligands with neutral Lewis-bases (LB) yielding addition or substitution products of the general formula $\text{SiX}_2(\text{LB})_2$ or $[\text{SiX}_n(\text{LB})_{3-n}](\text{X})_{2-n}$ ($n = 0, 1$)^[1c,2] and (ii) elimination reactions with suitable nucleophiles (Nu^-) leading to novel, low-valent, unsaturated silicon functionalities.^[3]

The present work deals with the synthesis and reactivity of $\text{SiBr}_2(\text{caac}^{\text{Me}})$. It will be shown that despite many similarities in the molecular and electronic structures between $\text{SiBr}_2(\text{caac}^{\text{Me}})$ and its NHC-analogue, the caac^{Me} -adduct displays novel reactivity patterns, such as, redox disproportionation in solution, reversible coordination of a Lewis-base, and conversion to metallosilenes of the general formula $\text{SiM}(\text{R})(\text{caac}^{\text{Me}})$ (M = alkali metal; R = singly bonded organyl substituent). The striking influence of the halide substituents on the reactivity of $\text{SiBr}_2(\text{caac}^{\text{Me}})$ will be discussed. In addition, selected examples of type-(i) and (ii) reactions (*vide supra*) will be presented. Finally, interesting structural and spectroscopic features of the pyramidal silenes $\text{SiX}(\text{R})(\text{caac}^{\text{Me}})$ (R = singly bonded organyl substituent) will be analysed.

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