

N*-(2,4,6-Trimethylborazinyl)-substituted Boron, Aluminum and Titanium Compounds

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The *N*-lithioborazine $\text{LiH}_2\text{N}_3\text{B}_3\text{Me}_3$, **1**, reacts with organoboron halides not only to the respective borazinyl organylboranes but also by Me/halogen exchange. $(\text{Me}_2\text{N})_2\text{B}-\text{H}_2\text{N}_3\text{B}_3\text{Me}_3$ was obtained from **1** and $(\text{Me}_2\text{N})_2\text{BCl}$. A new ten-membered B_6N_4 ring system, **5**, results on treatment of $\text{Cl}(\text{Me}_2\text{N})\text{B}-\text{B}(\text{NMe}_2)\text{Cl}$ with **1**. The *B-N*-borazinyl borazines **6–8** can be prepared from **1** and *B*-monohalo borazines. The synthesis of 2,4,6-trimethylborazinyl-aluminum and -titanium compounds is achieved only with mononuclear monohalides of Al(III) and Ti(IV). The 2,4,6-trimethylborazinyl-bis(piperidino)alane **9** and the tris(2,6-diisopropylphenoxy)-2,4,6-trimethylborazinyl-titanium **10** were characterized by X-ray structure analysis.

The distortion of the borazine ring by B and N substitution is discussed. In case of the *N*-substituted borazines $\text{YH}_2\text{N}_3\text{B}_3\text{Me}_3$ the B–N bonds of the YNB_2 units are elongated, *e. g.* for $\text{Y} = \text{PBr}_2$ or $(\text{RO})_3\text{Ti}$, while N lithiation leads to a shortening of these B–N bond. These changes of bond lengths are also reflected by changes in the B1–N2 and B3–N3 bond lengths which become shorter in the presence of electron-withdrawing groups, but longer in case of Li substitution. Also, the bond angles B1–N2–B2 and B2–N3–B3 are affected by an increase of up to 128° .

Key words: Borazine Derivatives, Diborane(4) Compound, Aminoalane, Titanium Phenoxide, X-Ray Structures