

## Novel Heteroleptic Amidinate Antimony Complexes

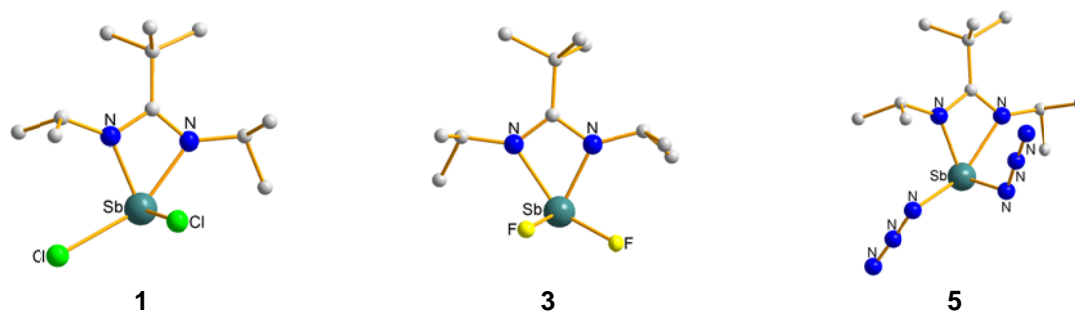
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N,N'-chelating organic ligands L such as  $\beta$ -diketiminato **I**, guanidinate **II** and amidinate **III** anions have attracted growing interest in organometallic chemistry in the last decade due to their capability to coordinate very flexible to the metal center as monodentate ( $\eta^1$ ), chelating ( $\eta^2$ ) or bridging monodentate ( $\mu$ - $\eta^1$ - $\eta^1$ ) four-electron donor. Moreover, complexes containing these types of substituents were found to be promising candidates for technical applications in catalysis, material sciences (i.e. precursors for CVD) and organic-inorganic hybrid materials since their steric and electronic properties can be tuned by modification of the organic substituents (R, R').<sup>[1]</sup>

Group 15 element complexes of the general type  $L_xEX_{3-x}$  (E = P, As, Sb, Bi; X = halogen) containing such N,N'-chelating ligands **I** – **III** have been only scarcely reported in the literature, to date, in particular those of the heaviest elements Sb and Bi. Only recently, a very few  $\beta$ -diketiminato, formamidinate and amidinate complexes  $LEX_2$  (E = As, Sb, Bi) have been synthesized and structurally characterized, including a low-valent amidodiarsene.<sup>[2]</sup>

Herein, we report on the synthesis and crystal structures of novel amidinate antimony complexes of the type  $[RC(NR')_2]SbX_2$  (X = Cl, R = *t*-Bu, R' = *i*-Pr **1**, 2,6-*i*-Pr<sub>2</sub>-C<sub>6</sub>H<sub>3</sub> (Dipp) **2**; X = F, R = *t*-Bu, R' = *i*-Pr **3**, Dipp **4**; X = N<sub>3</sub>, R = *t*-Bu, R' = *i*-Pr **5**, Dipp = **6**). Solvent-free mono-substituted amidinate complexes **1** - **4** were prepared in high yields by salt elimination reactions of SbCl<sub>3</sub> and SbF<sub>3</sub> with Li-amidates. The corresponding azide-substituted complexes (**5**, **6**) were obtained from azide-fluoride exchange reaction between **3** and **4** with trimethylsilylazide.<sup>[3]</sup>



**Figure 1.** Single crystal structures of complexes **1**, **3**, and **5**. Hydrogen atoms are omitted for clarity.

### References

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