



Structural and NMR-Dynamic Properties of $[\text{SnCl}(\mu\text{-NEt}_2)]_2$ - A Simple Heteroleptic Stannylene with Complex Features

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Although there has already been intensive research on stannylenes (stannanediyls, Sn(II) compounds) over the last decades, the fields of heteroleptic and stannylene ligands in transition metal complexes still foster astonishing results.[1]

The heteroleptic amido-chloro stannylene $[\text{SnCl}(\mu\text{-NEt}_2)]_2$ (**1**) crystallises in parallel strands of molecular Sn_2N_2 moieties along weak but distinct Sn-Cl contacts. The strands are themselves interconnected pair wise. This arrangement leads to inequivalent coordination polyhedra around the two types of tin atoms with Ψ -7- and 5-fold coordination (see Fig. 1).

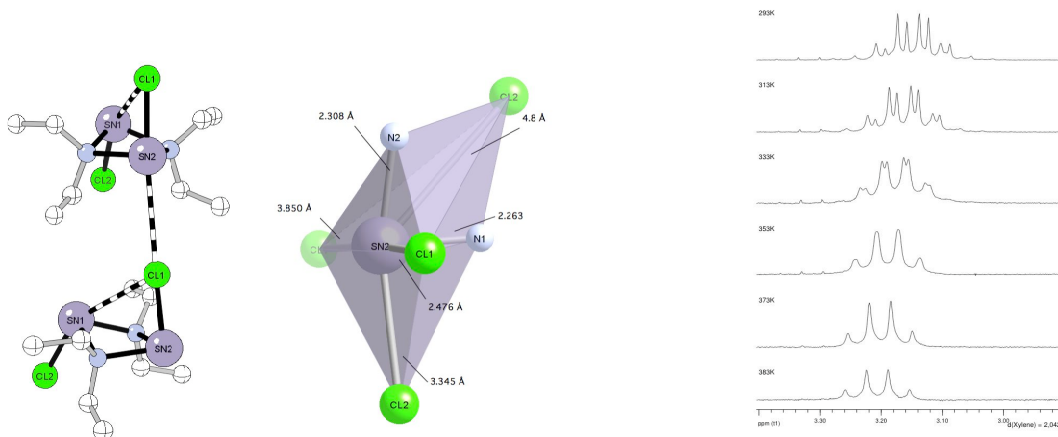


Figure 1: left: Molecular structure of $[\text{SnCl}(\mu\text{-NEt}_2)]_2$ (**1**) in the solid state (selected *inter*- and *intramolecular* Sn-Cl contacts; Ψ -7 fold coordination around Sn2); right: temperature-variable ^1H -NMR spectra of the AB part.

Due to the *trans*-position of the terminal chloro substituents, the methylene protons of the diethylamido bridges are prochiral, which generates an ABX_3 spin system at room temperature in the ^1H NMR spectra at different fields (see fig. 1). At high temperature, the signal shows coalescence, The kinetic parameters, deduced from line shape analyses, will be discussed and an exchange mechanism proposed.[2]

References:

- [1] J. J. Schneider, et al., *Chem. Eur. J.* **2000**, *6*, 625-35; K. Jurkschat et al. *J. Organomet. Chem.* **2006**, *691*, 1560-72; M. Veith et al. *Compt. Rend. Chim.* **2005**, *8*, 57-64.
- [2] M. Ehses, V. Huch, M. Veith, *in Vorbereitung*.