



## Polyhedron

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Subvalent group 14 metal compounds-XIII. Oxidative addition reactions of germanium and tin amides  $M(NR_2)_2$  ( $R = SiMe_3$ ,  $M = Ge$  OR  $Sn$ ) with sulphur, selenium, tellurium or  $MeOOC\text{C}\square\text{CCOOMe}$ ; X-ray structures of  $[Ge(NR_2)_2(\mu\text{-Te})]_2$  and  $\underline{Sn(NR_2)_2CC(OMe)OSn(NR_2)_2CC(OMe)O}$  ☆☆☆

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## Abstract

The germanium and tin divalent amide  $M(NR_2)_2$  ( $R = SiMe_3$ ,  $M = Ge$  or  $Sn$ ) readily reacts with a chalcogen (E) or  $MeOOC\text{C}\square\text{CCOOMe}$  to yield the appropriate metal(IV) oxidative addition product  $[M(NR_2)_2(\mu\text{-E})]_n$  ( $E = S, Se$  or  $Te$ ) (**1-6**) or

$\underline{Sn(NR_2)_2CC(OMe)OSn(NR_2)_2CC(OMe)O}$  (**7**), respectively. Each of the compounds **1-7**

has been characterized by microanalysis and NMR spectra and two of the compounds  $[Ge\{N(SiMe_3)\}_2(\mu\text{-Te})]_2$  (**3**) and **7**, by single crystal X-ray diffraction. Some selected geometric parameters are as follows. **3**: Ge-N 1.86(1), Ge-Te 2.595(2), Si—N 1.76(2) Å; TeGeTe' 94.38(6), GeTeGe' 85.59(6)°. **7**: (MeO)C-C(OMe) 1.40(2), CC—C(OMe) 1.36(2), MeOCO-Sn 2.125(9), Sn-C 2.07(1), Sn-N 2.031(9), Si-N 1.75(1)Å. Each of the compounds  $Sn(\eta\text{-C}_5\text{H}_4\text{R})(NR_2)$  (**8**) and  $Sn(\eta\text{-C}_5\text{H}_3\text{R}_2\text{-1,3})(NR_2)$  (**9**) was obtained in a mixture with  $Sn(NR_2)_2$  and the appropriate bis(cyclopentadienyl)tin(II) compound. <sup>119</sup>Sn NMR chemical shifts are reported for compounds **4** and **6-9**.



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