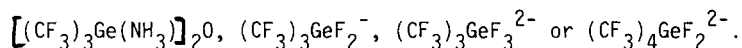


TRIFLUOROMETHYL GERMANATES – SYNTHESIS AND REACTIONS

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In trifluoromethylated germanes, $(\text{CF}_3)_n\text{GeX}_{4-n}$, the electron withdrawing power of the CF_3 groups implies a high Lewis acidity of the central germanium atom. The reaction with hard bases such as F^- or amines lead to penta- and hexacoordinated complexes, e.g.



Tricoordinated germanium is generated by proton abstraction from the very acidic $(\text{CF}_3)_3\text{GeH}$ which is characterized by a pK_a value of 2.7. Typical reactions of the $(\text{CF}_3)_3\text{Ge}^-$ anion may be discussed in terms of pseudohalide character, the properties being strongly related to those of the iodide ion. Numerous derivatives of group IV and group V elements, $\text{R}_n\text{E}[\text{Ge}(\text{CF}_3)_3]_m$ (R = alkyl; E = C, Si, Ge, Sn, Pb, N, P, As; m = 1, 2) have been synthesized.