

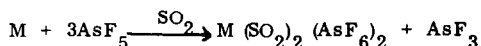
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SOME REACTIONS OF METAL-HEXAFLUORO-ARSENATES WITH SILYL AMINES

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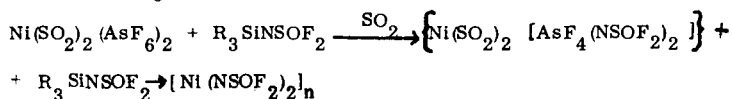
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Metal-hexafluoroarsenates (M=Ni, Cu [1, 2], Mn, Fe, Co [2], Zn, Mg) are readily prepared by oxidation of the appropriate metals with AsF_5 in liquid SO_2



The structure of the Mg-salt was determined, in the solid the Mg-atoms are surrounded by two O-coordinated SO_2 -ligands and 4 F-atoms from 4 different AsF_6^- -anions. The Mg- and AsF_6^- -ions form eight-membered cycles, connected to infinite chains.

Weak donor ligands, e.g. silylamines (R_3SiNSO_2 , R_3SiNSO , $\text{R}_3\text{SiNSiR}_3$, R_3SiNSF_2 , NSiR_3) displace the SO_2 -ligands, by coordination the reactivity of the Si-N-bond is greatly enhanced, it is cleaved even by the AsF_6^- -anion; e.g.



Reaction mechanisms and structures of the reaction products will be discussed.

1 C.D. Desjardins, J. Passmore J. Fluor. Chem. 6, 379 (1975) [2] P.A.W. Dean, *ibid.* 5 499 (1975)

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REACTIONS OF AsF_5 AND SbF_5 WITH ELEMENTAL SELENIUM AND TELLURIUM AND WITH TeF_4 AND $\text{Te}(\text{OTeF}_5)_4$

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Arsenic and antimony pentafluorides are versatile oxidizing agents that have been used to prepare a variety of new species. The reactions of these reagents with Se and Te and with mixtures of these two elements have been studied in some detail and a variety of cationic species of these elements have been prepared. Among the species containing both selenium and tellurium these include $\text{Te}_2\text{Se}_7^{2+}$, $\text{Te}_2\text{Se}_4^{2+}$, $\text{Te}_2\text{Se}_6^{2+}$ and $\text{Te}_2\text{Se}_8^{2+}$. The reactions have been followed using ^{77}Se and ^{125}Te nmr spectroscopy and the structures of the hexafluoroarsenate and hexafluoroantimonate salts that have been isolated have been determined by X-ray crystallography.

During the course of the work on the oxidation of Te with AsF_5 it became of interest to study the reaction of TeF_4 with AsF_5 and the results of this study and a similar study of the analogous reaction with $\text{Te}(\text{OTeF}_5)_4$ will be reported. Among the products of the latter reaction new ionic species such as $\text{Te}_x(\text{OTeF}_5)_{3-x}^+$ and $\text{AsF}_x(\text{OTeF}_5)_{6-x}^-$ have been observed.