

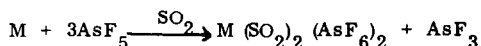
I-21

## SOME REACTIONS OF METAL-HEXAFLUORO-ARSENATES WITH SILYL AMINES

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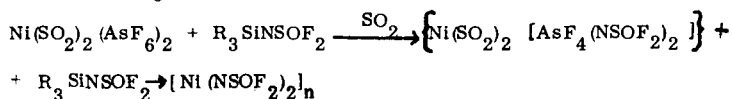
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Metal-hexafluoroarsenates (M=Ni, Cu [1, 2], Mn, Fe, Co [2], Zn, Mg) are readily prepared by oxidation of the appropriate metals with  $\text{AsF}_5$  in liquid  $\text{SO}_2$



The structure of the Mg-salt was determined, in the solid the Mg-atoms are surrounded by two O-coordinated  $\text{SO}_2$ -ligands and 4 F-atoms from 4 different  $\text{AsF}_6^-$ -anions. The Mg- and  $\text{AsF}_6^-$ -ions form eight-membered cycles, connected to infinite chains.

Weak donor ligands, e.g. silylamines ( $\text{R}_3\text{SiNSO}_2$ ,  $\text{R}_3\text{SiNSO}$ ,  $\text{R}_3\text{SiNSiR}_3$ ,  $\text{R}_3\text{SiNSF}_2$ ,  $\text{NSiR}_3$ ) displace the  $\text{SO}_2$ -ligands, by coordination the reactivity of the Si-N-bond is greatly enhanced, it is cleaved even by the  $\text{AsF}_6^-$ -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)

I-22

REACTIONS OF  $\text{AsF}_5$  AND  $\text{SbF}_5$  WITH ELEMENTAL SELENIUM AND TELLURIUM AND WITH  $\text{TeF}_4$  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  $\text{Te}_2\text{Se}_2^{2+}$ ,  $\text{Te}_2\text{Se}_4^{2+}$ ,  $\text{Te}_2\text{Se}_6^{2+}$  and  $\text{Te}_2\text{Se}_8^{2+}$ . The reactions have been followed using  $^{77}\text{Se}$  and  $^{125}\text{Te}$  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  $\text{AsF}_5$  it became of interest to study the reaction of  $\text{TeF}_4$  with  $\text{AsF}_5$  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.