

STUDIES OF SOME SUBSTITUTED ARSENIC FLUORIDES

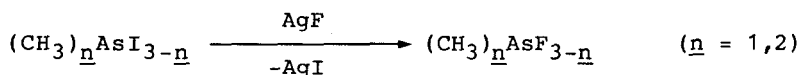
A. J. Downs, A. M. Forster, G. S. McGrady

Inorganic Chemistry Laboratory, University of Oxford, OX1 3QR (U.K.)

D. W. H. Rankin and H. E. Robertson

Chemistry Department, University of Edinburgh, EH9 3JJ (U.K.)

The compounds CH_3AsF_2 and $(\text{CH}_3)_2\text{AsF}$ have been synthesized by metathetical fluorination:



These ill-defined compounds have been characterized by ^1H and ^{19}F n.m.r. and vibrational spectroscopy.

Electron-diffraction studies of the vapours have ascertained a pyramidal structure for both molecules, conforming to C_s symmetry. Preliminary results are: (i) for CH_3AsF_2 , $\underline{r}(\text{As-C})$ 193.7(0.8), $\underline{r}(\text{As-F})$ 173.0(0.2) pm; CAsF 96.5(1.2) and FAsF 95.4(2.3) $^\circ$; (ii) for $(\text{CH}_3)_2\text{AsF}$, $\underline{r}(\text{As-C})$ 195.1(0.2), $\underline{r}(\text{As-F})$ 175.4(0.2) pm; CAsC 97.4(0.7) and CAsF 95.3(0.3) $^\circ$. The results for CH_3AsF_2 are in good agreement with an earlier microwave study [1]. The structural parameters cited above are compared to those of related molecules.

1 L.J. Nugent and C.D. Cornwell, J.Chem.Phys., **37** 3 (1962).