I24

STUDIES OF SOME SUBSTITUTED ARSENIC FLUORIDES

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The compounds CH_3AsF_2 and $(CH_3)_2AsF$ have been synthesized by metathetical fluorination:

$$(CH_3)_{\underline{n}}AsI_{3-\underline{n}} \xrightarrow[-AgI]{AgF} (CH_3)_{\underline{n}}AsF_{3-\underline{n}} \qquad (\underline{n} = 1,2)$$

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, $\underline{r}$(As-C) 193.7(0.8), $\underline{r}$(As-F) 173.0(0.2) pm; CAsF 96.5(1.2) and FAsF 95.4(2.3)°; (ii) for $(CH_3)_2AsF$, $\underline{r}$(As-C) 195.1(0.2), $\underline{r}$(As-F) 175.4(0.2) pm; CAsC 97.4(0.7) and CAsF 95.3(0.3)°. 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).