

NITROGEN CONTAINING COMPLEXES OF TRANSITION METAL FLUORIDES

R. Cockman, J. Fawcett, R. D. Peacock and D. R. Russell

Chemistry Department, University of Leicester, Leicester LE1 7RH (U.K.)

The action of Me_3SiN_3 on ReF_6 leads to the nitride fluoride ReNF_4 in low yield, together with another nitride fluoride of indeterminate composition. Treatment of either of these materials with XeF_2 , ClF_3 or BrF_3 as appropriate gives the nitrenes $\text{ReF}_5(\text{NF})$, $\text{ReF}_5(\text{NCl})$ [1], and $\text{ReF}_5(\text{NBr})$. Other methods designed to lead to these compounds are also described. From single crystal X-ray measurements it has been shown that in $\text{ReF}_5(\text{NF})$ and $\text{ReF}_5(\text{NCl})$ the ReNF and ReNCl bonds are nearly linear; the short N-F and N-Cl bond lengths are 1.257(13) and 1.558(18)Å respectively.

The preparation of $\text{OsF}_5(\text{NCl})$ is described together with some preliminary work on the reaction of several trimethylsilyl nitrogen derivatives with MoF_6 , WF_6 and ReF_6 .

1. J. Fawcett, R. D. Peacock and D. R. Russell, J. Chem. Soc. Chem. Commun. (1982) 958.