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# RHENIUM NITRIDE TETRAFLUORIDE AND RELATED COMPOUNDS

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Azidotrimethylsilane, $Me_3SiN_3$, reacts with $ReF_6$ at $-50^{\circ}$ in Genetron 113 (1,1,2-trichlorotrifluoroethane) to give, after suitable treatment, the nitrile fluoride $ReNF_4$ (10%) and a black solid (I). (I) yields $ReF_5(NCl)$ with $ClF_3$ and $ReF_5(NF)$ with $XeF_2$ in Genetron 113. $ReNF_4$ is a very reactive pale yellow crystalline solid which yields $NH_3$ with $OH^-$aq. $ReF_5(NCl)$ (purple) and $ReF_5(NF)$ (orange) both have nearly linear Re-N-X groups; the nitrogen halogen bond lengths (N-Cl = 1.56Å; N-F = 1.26Å) are short. The $^{19}F$ n.m.r. spectrum of $ReF_5(NCl)$ at $-10^{\circ}$ in $ClF_3$ solution shows a well resolved doublet (90Hz, + 180.4 p.p.m.) and a quintet (+ 163.5 p.p.m.) relative to $CFCl_3$.