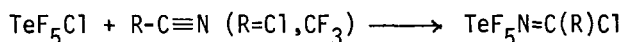


A NEW ROUTE TO TELLURIUM-NITROGEN COMPOUNDS

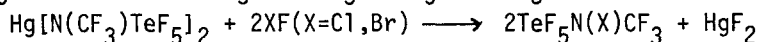
J. S. Thrasher* and K. Seppelt

Institut für Anorganische und Analytische Chemie des Freien Universität Berlin, Fabockstrasse 34-36, 1000 Berlin 33 (F.R.G.)

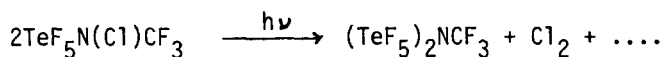
Whereas there is a vast chemistry of sulfur nitrogen compounds, very little is known about the corresponding tellurium nitrogen systems. A few Te-N compounds have been prepared by replacement of fluorine by nitrogen containing groups, resulting e.g. in TeF_5NH_2 [1]. But this method seems to be exhausted. We have now found that TeF_5Cl can be added photolytically to nitriles under retainment of the TeF_5 group.



The reaction of $\text{TeF}_5\text{N}=\text{CCl}_2$ with excess HF gives the amine $\text{TeF}_5\text{NHCF}_3$ as a clear, stable liquid in 90% yield. The anion $\text{TeF}_5(\text{CF}_3)\text{N}^-$ can be generated directly from $\text{TeF}_5\text{N}=\text{CCl}_2$ by reaction with CsF. The imine $\text{TeF}_5\text{N}=\text{CF}_2$ is produced in 35% yield by pyrolysis of the salt found between $\text{TeF}_5\text{NHCF}_3$ and KF. A mercury derivative, $\text{Hg}[\text{N}(\text{CF}_3)\text{TeF}_5]_2$, has also been obtained by the reaction of HgF_2 with $\text{TeF}_5\text{NHCF}_3$. This colorless, crystalline, sublimable mercurial serves for the preparation of other $\text{TeF}_5\text{-N}$ compounds: $\text{TeF}_5\text{N}(\text{Cl})\text{CF}_3$, $\text{TeF}_5\text{N}(\text{Br})\text{CF}_3$. Both nitrogen



halogen compounds are surprisingly stable. Photolysis of $\text{TeF}_5\text{N}(\text{Cl})\text{CF}_3$ gives the first material with two tellurium atoms bonded to the same nitrogen. All new materials have been identified by conventional



physical methods including elemental analysis where possible.

Especially the ^{19}F -NMR spectra exhibit in all cases an AB_4 -pattern with ^{125}Te -isotope satellites, as characteristic for TeF_5 groups.