SYNTHESIS AND CHEMISTRY OF $HC(SO_2F)_3$ AND CIS- AND TRANS $(HO)_2TeF_4$

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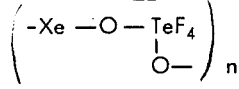
$HC(SO_2F)_3$ has been prepared and characterized. It turned out to be a strong acid, comparable to mineral acids. In aqueous solution the salts of the type $Cs^+C(SO_2F)_3^-$ are formed. The anion, as found by crystal structure analysis contains planar CS_3 configuration.
Quite in contrast to these findings $HC(OSO_2F)_3$ is not even soluble in water.

Derivatives of $HC(SO_2F)_3$ have been prepared so far

CH_3-$C(SO_2F)_3$ F-$C(SO_2F)_3$
$ClC(SO_2F)_3$ Br-$C(SO_2F)_3$
J-$C(SO_2F)_3$

The heavier halogen derivatives (Cl, Br, J) are oxidizing agents ('positive halogen').

A mixture of cis- and trans- $(HO)_2TeF_4$ is obtained if $HOTeF_5$ and $Te(OH)_6$ are melted together. The mi xture of the isomeres have been transfered into the corresponding silylesters cis- and trans- $(R_3SiO)_2TeF_4$, which could be separated by fractional crystallisation and distillation.
Without conformational change the pure silylesters have been reacted back to pure cis- $(HO)_2TeF_4$ and trans - $(HO)_2TeF_4$ by means of anhydrous HF.
Both cis- and trans $(HO)_2TeF_4$ have been reacted with ClF to give cis- and trans- $(ClO)_2TeF_4$, yellow liquids. The latter react with elemental bromine to the rather unstable cis- and trans- $(BrO)TeF_4$, red liquids.
Starting with cis-$(HO)_2TeF_4$ and XeF_2 a polimer Xenon compound of the formula



has been prepared.

All materials have been characterized by melting point and vapour pressure, 19 F - nmv spectroscopy, vibrational spectroscopy, and elemental analysis.