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PREPARATIONS AND PROPERTIES OF TETRAKIS(PERFLUOROORGANO)-TELLURIUM COMPOUNDS

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$(CF_3)_4Te$ is the first chalcogen compound with more than two CF_3 groups. It is formed from the reaction of equivalent amounts of $(CF_3)_2TeCl_2$ and $(CF_3)_2Cd \cdot glyme$ [1]:

$$(CF_3)_2TeCl_2 + (CF_3)_2Cd \cdot D \xrightarrow{-10\ ^{\circ}C} (CF_3)_4Te + CdCl_2 + D.$$

$(CF_3)_3TeCl$ is detected as an intermediate.

$(CF_3)_4Te$ is a decomposable yellow liquid (m.p. ca. -45 °C). The photolysis in the presence of cyclohexene yields $C_6H_{10}(CF_3)_2$, $C_6H_{10}(CF_3)(TeCF_3)$ and some decomposition compounds. During the thermal decomposition also $|CF_2$ is formed.

$(CF_3)_4Te$ has amphoteric properties:

$$(CF_3)_4Te + MF \rightarrow M^+[(CF_3)_4TeF]^-$$

$$(CF_3)_4Te + BF_3 \rightarrow [(CF_3)_3Te]^+ [BF_4]^-$$

$$+ AsF_5 \downarrow -BF_3$$

$$(CF_3)_4Te + AsF_5 \rightarrow [(CF_3)_3Te]^+ [AsF_6]^-$$

All these reactions and the spectra of the new compounds as well as some experiments to prepare other tetrakis(perfluoroorgano)Tellurium compounds are discussed.

1 D. Naumann and B. Wilkes, J. Fluorine Chem. 27 (1985) 115.