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PREPARATION AND PROPERTIES OF PERFLUOROALKYL TELLURIUM COMPOUNDS, PART I

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For lack of appropriate preparation methods only few properties of perfluoroalkyl tellurium compounds are known. Therefor we investigated several reactions, e.g. $(CH_3)_2Te$ with R_fI, $(CH_3)_2Te$ with F_2, $TeCl_4$ with $(CF_3)_2Hg$. From these many new perfluoroalkyl tellurium compounds could be synthesized. The best way to prepare $(CF_3)_2Te$ in high yield and large amount is the thermal reaction of $TeCl_4$ with $(CF_3)_2Hg$.

$(CF_3)_2Te$ is not hydrolysable but very sensible to oxidation. F_2 and other fluorinating agents as well as Cl_2 and Br_2 oxidize $(CF_3)_2Te$ to the new compounds $(CF_3)_2TeX_2$ (X = F, Cl, Br). The reactions with I_2 however leads to decomposition. With O_2 the probably polymeric solid $(CF_3)_2TeO$ is formed. $(CF_3)_2Te$ reacts with ozone to a very unstable compound, which decomposes at low temperature. $ClONO_2$ oxidizes $(CF_3)_2Te$ quantitatively to the nitrate $(CF_3)_2Te(ONO_2)_2$. Many other new derivatives can be prepared from exchange reactions, e.g. $(CF_3)_2Te(OCOCF_3)_2$ from $(CF_3)_2TeF_2$ and $(CF_3CO)_2O$.

All these new compounds could be isolated in a pure state. Their properties and spectra will be described.