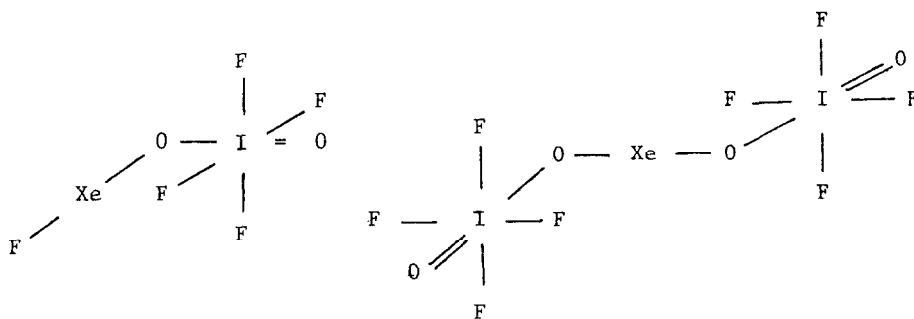


NOVEL XENON DERIVATIVES OF IO_2F_3 AND OF THE $-\text{OTeF}_5$ GROUP

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Iodine dioxidetrifluoride has been shown to form covalent adducts in solution with the xenon fluorides. In the case of XeF_2 , the 1:1 and 1:2 structures



are shown by ^{19}F and ^{129}Xe NMR spectroscopy to be the dominant species in solution at low $\text{IO}_2\text{F}_3:\text{XeF}_2$ ratios. The structures are analogous to those of the previously reported FXeOTeF_5 and $\text{Xe}(\text{OTeF}_5)_2$ compounds. In addition, the 1:2 isomer $\text{FXe}-\overset{\text{O}}{\underset{\text{O}}{\text{I}}}(\text{F}_3)-\text{O}-\text{I}(\text{F}_4)=\text{O}$ has been identified. Raman spectroscopic studies of the solid adduct formulations $\text{XeF}_2 \cdot \text{IO}_2\text{F}_3$ and $\text{XeF}_2 \cdot 2\text{IO}_2\text{F}_3$ isolated from solution are consistent with the above structures. At high $\text{IO}_2\text{F}_3:\text{XeF}_2$ ratios, $\text{O}=\text{I}(\text{F}_4)-\text{O}-\text{Xe}-\overset{\text{O}}{\underset{\text{O}}{\text{I}}}(\text{F}_3)-\text{O}-\text{I}(\text{F}_4)=\text{O}$ and $\text{Xe}[\text{O}-\overset{\text{O}}{\underset{\text{O}}{\text{I}}}(\text{F}_3)-\text{O}-\text{I}(\text{F}_4)=\text{O}]_2$ have been identified in solution by ^{19}F and ^{129}Xe NMR spectroscopy.

The $-\text{OTeF}_5$ derivatives of XeO_2F_2 , i.e. $\text{O}_2\text{XeF}(\text{OTeF}_5)$ and $\text{O}_2\text{Xe}(\text{OTeF}_5)_2$ have been synthesized at low temperature. Xenon-129 NMR evidence is provided which supports these structures as well as low temperature Raman spectroscopy on solid $\text{O}_2\text{Xe}(\text{OTeF}_5)_2$.

Trends in NMR parameters among series of $-\text{OTeF}_5$ and $-\text{OIOF}_4$ derivatives of xenon +2, +4 and +6 will also be discussed.