A-2

ON THE REACTIONS WITH KRYPTON DIFLUORIDE

Karel Lutar, Adolf Jesih and Boris Žemva*

'Jožef Stefan' Institute, 'Edvard Kardelj' University Ljubljana, 61000 Ljubljana (Yugoslavia)

Krypton difluoride is a more powerful oxidizing agent than elemental fluorine, in that the total bond energy of 96 kJ $mole^{-1}$, is less than that of molecular fluorine itself (155 kJ $mole^{-1}$). Using the combination of KrF_2 with the fluoride-ion donor solvent xenon hexafluoride, it should be possible to generate salts of novel oxidation-state transition-metal fluoro-anions.

With this aim, an investigation of the system MF_x-KrF_2-XeF_6 with MF_x being AgF_2, NIF_2, MnF_2, HgF_2, FeF_2, PdF_3, CrF_3 etc., was commenced. During this study some new xenon(VI) fluorometalates (e.g. $XeF_5^+AgF_4^-$, $(Xe_2F_{11}^+)_2NiF_6^{2-}$, $(XeF_5^+)_2NiF_6^{2-}$) were isolated and characterized, besides some already known xenon(VI) fluorometalates (e.g. $XeF_5^+FeF_4^-$, $(Xe_2F_{11}^+)_2MnF_6^{2-}$, $(XeF_5^+)_2MnF_6^{2-}$ etc.).

The advantages and disadvantages of the combination KrF_2 and XeF_6 for the generation of salts with the transition metal fluoroanion in a novel oxidation state will be discussed.