

"CLATHRATES" (?) OF NOBLE-GAS FLUORIDES

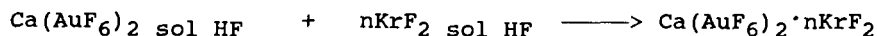
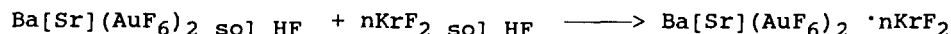
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Reactions between gold pentafluoride and alkali-earth metals fluorides in non-aqueous hydrogen fluoride were investigated. $\text{Ca}(\text{AuF}_6)_2$, $\text{Sr}(\text{AuF}_6)_2$ and $\text{Ba}(\text{AuF}_6)_2$ were identified.

The Raman spectra of the received compounds were examined in crystalline form and in the non-aqueous HF solution.

It was found out, that bis-hexafluoroaurates had high solubility in non-aqueous HF. The Raman spectra of liquid system $\text{HF}-\text{M}^{\text{II}}(\text{AuF}_6)-\text{KrF}_2$ were investigated. The compounds of variable composition on KrF_2 , where $n=1+4$ (Ba, Sr) and $n=1+3$ (Ca) were crystallized from this system, if the solvent were evaporated slowly.



The results of Raman spectra analyses of obtained compounds are presented. Interaction between KrF_2 and $\text{M}^{\text{II}}(\text{AuF}_6)_2$ leads to essential increase of vibrational frequency of Kr-F bond (up to 35 cm^{-1}) comparing with KrF_2 (462 cm^{-1}) and to the splitting of vibrational bond. This interaction decreases with increase of n ; the possible nature of interaction is discussed.

The received compounds are characterized by higher thermal stability of the "bonded" KrF_2 . If heated up to 350 K KrF_2 may be quantitatively obtained from the salts. If heated quickly up to 370+380 K the salts decomposes with explosion. The energy aspect of the complex salts formation is discussed.

The results of interaction between $\text{M}^{\text{II}}(\text{AuF}_6)_2$ and xenon fluorides will be also presented.