SOLID STATE REACTIONS OF HEXAFLUOROSILICATES

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At beginning thermal decomposition $K_2[SiF_6]$ loses SiF_4-planes from $[SiF_6]^{2-}$-octahedrons, which has been proved by x-ray-diffraction [1], [2]. Analogous disorder structures are supposed to be present with all solids having complex ions including carbonates, sulfates and others. The result is a high reactivity at this spots. Another reactive form in hexafluorosilicates is represented by mobile Si-F-species, perhaps SiF_3^+. The reactivity is shown by heterogenous reactions with $CHCl_3$ and by solid-solid reactions for instance with halides, oxides etc. As an example corundum (α-Al_2O_3) reacts at 600°C giving K_3AlF_6 and $KAlSiO_4$ [3].

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