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THE CHEMISTRY OF NEPTUNIUM FLUORIDES IN LIQUID ANHYDROUS HYDROGEN FLUORIDE. THE ISOLATION AND CHARACTERIZATION OF NpF_5

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Pure NpF_5 is precipitated from solutions of the alkali metal salts, $MNpF_6$, in liquid anhydrous hydrogen fluoride by acid-base displacement reaction with BF_3

$$M^+ + NpF_6^- + BF_3 \longrightarrow M^+ + BF_4^- + NpF_5 \downarrow$$

NpF_5 has the αUF_5 structure. It decomposes rapidly only above 280°C to give NpF_6 and NpF_4. On hydrolysis in 1 M $HClO_4$ it disproportionates to give NpF_4 and NpO_2^{++}.

Characteristic optical spectra of the pure compound and the salts derived from it are given.