

# Thermal Stability of Quaternary Ammonium Hexafluorophosphates and Halides

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**Abstract**—Thermal decomposition of hexafluorophosphates of short-chain tetraalkylammonium salts of the general formula  $R_3R'NPF_6$ , where  $R_3 = R' = \text{CH}_3, \text{C}_2\text{H}_5, \text{C}_4\text{H}_9$ ;  $R_3 = \text{C}_2\text{H}_5, R' = \text{CH}_2\text{C}_6\text{H}_5$  or  $\text{CH}_2\text{CH}=\text{CH}_2$ , was studied by thermal gravimetric analysis. Measurements were performed in air in the temperature interval 20–500°C. The thermal stability of halides with the same cations in the same temperature interval was studied for comparison. The effect of cation on the thermal stability of the halides and hexafluorophosphates was examined. The mechanism of thermal decomposition of quaternary ammonium hexafluorophosphates was suggested.

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