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# Comparative Characteristics of Thermal Stability of Quaternary Ammonium and Pyridinium Tetrachloroferrates

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**Abstract**—New ionic liquids quaternary ammonium  $[(\text{CH}_3)_2\text{N}(\text{CH}_2\text{CH}_2\text{OH})\text{R}]\text{FeCl}_4$  and pyridinium  $[\text{C}_5\text{H}_5\text{NR}]\text{FeCl}_4$  [ $\text{R} = \text{CH}_2\text{CH}=\text{CH}_2$ ,  $\text{C}_4\text{H}_9$ ,  $(\text{CH}_2)_3\text{CN}$ ,  $\text{CH}_2\text{C}_6\text{H}_5$ ,  $\text{C}_{10}\text{H}_{21}$ ] tetrachloroferrates were synthesized. Their thermal stability was studied in air in the range of 25–600°C. The thermal stability of quaternary ammonium and 1-alkylpyridinium tetrachloroferrates was compared, and the mechanism of thermal destruction was proposed.

**Keywords:** magnetic ionic liquids, synthesis, tetrachloroferrates, thermal stability, quaternary salts

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