Effect of Alkali Metal Salts on Decomposition of Ionic Liquid like Organic Salt

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N^1,N^1,N^2,N^2-tetramethylethane-1,2-diamine based ionic salts (TMEDA), N^1,N^1,N^1,N^2,N^2,N^2-hexamethylethane-1,2-diaminium dicyanamide (HMEDA-$(DCA)_2$) was prepared following the feasible chemical reaction route. The chemical structure of the HMEDA-$(DCA)_2$ was confirmed using 13C NMR spectrum and elemental analysis. Its viscosity was controlled lower than 5 cP at room temperature, which was critical for propellant application. The ignition delay of 40wt% HMEDA-$(DCA)_2$ solution was decreased to 20-30 msec dramatically using alkali metal salts, $Li(CH_3COO)$, $Mg(CH_3COO)_2$ and $Ca(CH_3COO)_2$ as a co-catalyst when white fume nitric acid was utilized as an oxidizer.