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Thermal Decomposition of Ammonium per chlorate-Tetraethyl Ammonium per chlorate Mixtures

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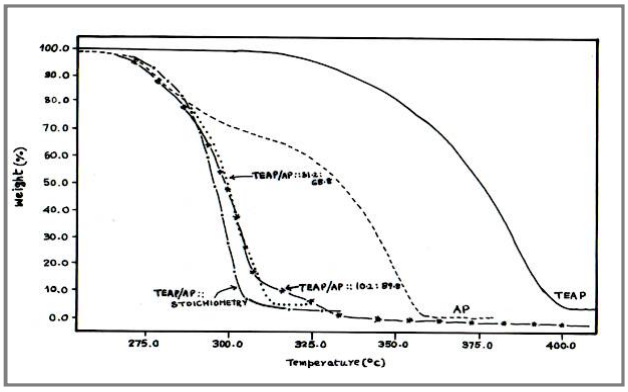
ABSTRACT

The influence of tetra ethyl ammonium per chlorate (TEAP) on the thermal decomposition of ammonium per chlorate (AP) is studied employing thermo-analytical tools of TG, DTG, and DSC in pure nitrogen atmosphere. TEAP catalyzes the HTD of AP by bringing down the reaction temperature more towards LTD region. Stoichiometric composition is more effective than all other ratios studied. Thus, we have a more promising composition for air-breathing propulsion applications.

Graphical Abstract:



TG-Curves of Pure AP, pure TEAP and their Oxidizer-rich, Stoichiometric and fuel-rich mixtures.

Keywords: Tetra ethyl ammonium per chlorate, Ammonium per chlorate, Thermo gravimetric.