



## **Thermal Decomposition of Ammonium Perchlorate – Benzyl Triethyl Ammoniumtetrafluoroborate Mixture: A Simultaneous TG-MS Approach**

**M. R. R. Prasad<sup>1\*</sup>, K. Sudhakarbabu<sup>1</sup> and B. Sreedhar<sup>2</sup>**

1. Department of Chemistry, Sri Krishnadevaraya University, Anantapur – 515055, **INDIA**
2. Inorganic & Physical Chemistry Division, Indian Institute of Chemical Technology, Hyderabad – 500 007, **INDIA**

Email: [mandapaka.p@gmail.com](mailto:mandapaka.p@gmail.com), [drksbabu9@gmail.com](mailto:drksbabu9@gmail.com), [sreedharb@iict.res.in](mailto:sreedharb@iict.res.in)

Accepted on 17<sup>th</sup> September 2015

---

### **ABSTRACT**

*Focus is on the search for materials that can suppress the first exotherm of ammonium perchlorate, a factor contributing to the premature re-ignition of extinguishable solid propellant rocket motors. In this context, the role of benzyl-triethyl-ammonium tetrafluoroborate in modifying thermal decomposition of ammonium perchlorate is considered. The mechanistic aspect of thermal decomposition of mixture of AP and Benzyl-triethyl-ammoniumtetrafluoroborate are discussed based on simultaneous TG – MS studies. The formations of trialkyl amine, corresponding alkyl halide, together with boron trifluoride are the suggested intermediate products.*

**Keywords:** Ammonium perchlorate, Benzyl triethyl ammoniumtetrafluoroborate, decomposition.

---