



Thermal decomposition of Ammonium per chlorate-PART-II: Effect of Source of Supply

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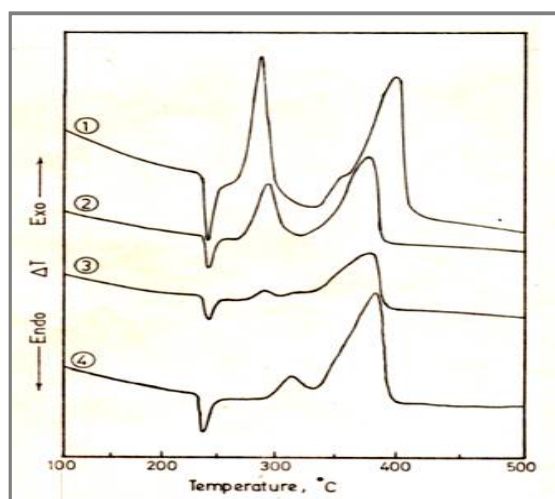
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ABSTRACT

Thermal decomposition of ammonium per chlorate (AP) from different sources of supply is the subject matter of this research program. Both isothermal and non-isothermal studies have been reported. The AP samples from PEPCON, USA; MITSUBISHI, Japan; WIMCO, Mumbai; and APEP, VSSC, ISRO were employed in these studies. The low-temperature Isothermal experiments were conducted at 200°C, 210°C, and 220°C. Both, isothermal and non-isothermal experiments were conducted in an inert atmosphere of pure nitrogen, at controlled gas-flow, and at a sample heating rate of 10°C.min⁻¹. Induction periods reduced with increase in isothermal temperature. Sigmoid curves were observed under isothermal condition of 220°C with progressive decomposition taking place. The order of thermal stabilities of these per chlorates are – PEPCON-AP > MITSUBISHI-AP > WIMCO = APEP.

Graphical Abstract:



DTA-Curves of AP from Different Sources of Supply.

Keywords: PEPCON-AP, MITSUBISHI – AP, WIMCO-AP, Uncoated APEP-AP, Coated APEPAP, Isothermal, Non-isothermal, decomposition.