

**CALORIMETRIC INVESTIGATIONS OF LUMINESCENT FILMS  
POLYCARBONATE**

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Polymers doped with rare earths are advantaged in the production of films for many applications in the luminescent field. In this work were prepared luminescent polycarbonate (PC) films doped with rare earth complexes triaquatrakis(tenoyltrifluoroacetate)  $[\text{Eu}(\text{TTA})_3 (\text{H}_2\text{O})_3]$  and their calorimetric and luminescent properties in the solid state are reported. The ratio of the complex  $[\text{Eu}(\text{TTA})_3 (\text{H}_2\text{O})_3]$  were 0%, 1%, 2%, 5%, 7% (w/w). The thermal behavior was investigated by utilization of Differential scanning calorimetry (DSC) and Thermogravimetry (TG). Due to the addition of rare earth  $[\text{Eu}(\text{TTA})_3 (\text{H}_2\text{O})_3]$  into polycarbonate matrix, changes were observed in the thermal behavior concerning the initial temperature of decomposition and thermal stability. The luminescent property was investigated by emission spectra. Characteristic sharp bands arising from the  ${}^5\text{D}_0 \rightarrow {}^7\text{F}_J$  transitions ( $J=4-0$ ) of  $\text{Eu}^{3+}$  rare earth ion, indicates the incorporation of the  $\text{Eu}^{3+}$  ions in the polymeric system. The luminescent films show enhancement emission intensity with an increase of rare earth concentration in polymeric matrix accompanied by decrease in thermal stability.