

# SYNTHESIS, CHARACTERIZATION AND MESOMORPHIC PROPERTIES OF LANTHANIDE (III) 4-ALKOXYBENZOATES

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The lanthanide (III) 4-alkoxybenzoates,  $[\text{Ln}(\text{C}_n\text{H}_{2n+1}\text{OC}_6\text{H}_4\text{CO}_2)_3]$ , Ln = La (III), Pr (III), Nd (III), Eu (III), Gd (III), Tb (III) and Dy (III) and n = 6, 8, 10, 12 and 16] have been synthesized and characterized by elemental analyses, magnetic susceptibility measurement, IR and electronic spectroscopy. Hot-stage polarizing optical microscopy and differential scanning calorimetry have been used to investigate the mesomorphic behaviour. The chain length influences the structure and hence the thermal behaviour of these compounds. All the lanthanide complexes except decyloxy derivatives exhibit smectic A mesophase. The decyloxy containing complexes show only one transition and therefore non-mesomorphic. The DSC traces do not display the exothermic peak for all the compounds except for the hexadecyloxy derivatives which exhibit enantiotropic smectic A phase. The influence of the lanthanide ions on the phase transition has also been clearly demonstrated.

**Keywords:** Lanthanides; Metallomesogens; 4-Alkoxybenzoates; Smectic A phase; Liquid crystals