

Mesomorphic Properties of Structure Related Ester Homologous Compounds :P-(P'-N-Alkoxy Benzoyloxy) Ter-Butyl Cinnamates.

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Abstract :

A novel homologous series of p-(p'-n-Alkoxy Benzoyloxy) ter-Butyl Cinnamates was synthesized and studied for mesophase behavior dependence on molecular structure. The nematogenic mesophase is exhibited from the Pentylloxy to the last member hexadecyloxy derivative and the smectogenic mesophase from the pentylloxy to the tetradecyloxy member of the series. The nematic mesophase is of a threaded or Schlieren type, and the smectic mesophase is of a focal conic fan of the type A or C. Mesomorphic properties of the present novel homologous series are compared with other structurally similar homologous series. The average smectic and nematic thermal stabilities are 172.33 °C and 202.14 °C, respectively. Smectogenic phase lengths vary from 22 °C (C₁₄) to 58 °C (C₈) and the nematogenic phase lengths vary from 10 °C (C₁₆) to 50 °C (C₅). The series is partly nematogenic and smectogenic with considerable mesophase length. It is a middle ordered melting type series, whose relative group efficiency order for nematic derived.

Keywords : Liquid crystal; mesomorphic; monotropic; nematic; smectic