

Studies of first- and second-order phase transitions in LC methacrylic monomers based on the β -hexyloxysalicylaldehyde group

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The synthesis and phase characterization of two liquid crystalline methacrylic monomers based on the β -hexyloxysalicylaldehyde group with octyl and decyloxy chain substitutions is presented. The liquid crystalline materials were characterized by polarizing optical microscopy, differential thermal analysis and X-ray diffractometry. Nematic and tilted smectic C phases were observed in the compounds. Their liquid crystalline properties were compared with previously studied samples of homologous compounds. In contrast to previous results, this structural modification induces pronounced enantiotropic first-order phase transitions between nematic and smectic C mesophases. A correlation between the phase transition behaviour and structural features of the sample is included. © 2007 Taylor & Francis.