

Phase Transitions in *p*-(Phenyl Benzyldiene)-*p*¹-Alkylaniline Compounds: A Dilatometric Study

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Dilatometric studies are carried out on liquid crystals (LCs), viz., *p*-(phenyl benzyldiene)-*p*¹-alkylanilines (PB*n*A for *n* = 7 – 10, 12, 14 and 16). LC PB*n*A compounds are found to exhibit four different types of phase variants. The lower homologues (for *n* = 3 – 6) exhibit an NBE trivariant, intermediate homologues (with *n* = 7 – 9) exhibit an NABE tetravariant, higher homologues (for *n* = 10 – 12) exhibit an ABE tetravariant, and long higher homologues (for *n* = 14 and 16) exhibit an AB bivariant phase sequence. Dilatometry studies in PB*n*A compounds infer the first order nature for IN (for *n* = 7, 8 and 9), IA (for *n* = 10, 12, 14 and 16), NA (for *n* = 8 and 9) and AB (for *n* = 14 and 16) phase transitions. Phase transitions involving the growth of the 3D smectic-B phase in PB*n*As are found to be tuned by squeezing of orientational disorder. A comparative study of phase transitions exhibited by PB*n*A compounds is presented along with the data in other Schiff base compounds.

Key words: Phase Transitions; Dilatometry; Nematic and Smectic Phases; Orientational Disorder.