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compounds, mixing bent-core molecules with calamitic ones have resulted recently in suc-cessful extension of the mesophases toward lower temperatures [9]. In search for novel mesomorphic architectures a new bell-shaped compound 5-(9-decenyloxy-carbonyl)-1,3-phenylene bis(4-nonyloxy biphenyl) carboxylate (I) has been synthesized.Â Phase sequences and phase transitions temperatures were determined via the temperature variation of characteristic textures observed and recorded by a CCD camera attached to the microscope. Occa-sionally planar oriented sandwich cells with ITO electrodes were also used to check the electro-optical responses.Â Figure 2. Phase diagram for binary mixtures of rod-like and bell-shaped molecules. Smectic Phases of Bent-Core Molecules Phase. The Nematic Phase of Bent-Core Molecules. Anisotropic physical properties of liquid crystals.Â I Alignment and alignment transition of bent core nematics Omaima Elamain, Gurumurthy Hegde and Lachezar Komitov, Appl. Phys. Lett.Â III Optically isotropic state in bent core nematic mixtures with rod like molecules induced by dc electric eld Omaima Elamain, Gurumurthy Hegde, Katalin Fodor-Csorba and Lachezar Komitov, submitted for publication to Journal of APL, under revision.Â The relationship between chemical structure and mesophase behavior known in calamitic liquid crystals cannot be applied to bent mesogens. The question arises how the BC compounds have to be constructed to be able to form nematic phase. For example, the question arises if this combination can lead to polymorphism variants with â€œbanana phasesâ€ as well as mesophases typical for calamitic compounds (N, SmA, SmC) which could be realized in binary mixtures of bent-core and calamitic compounds.8,9 Note that recently a twin molecule was reported where a bent-core unit is linked with a terminal-polar calamitic.Â Competition of calamitic and bent-core moieties in the liquid-crystalline dimers 1aâ€“c.Â It is interesting to compare the Nâ€“I transition temperatures of corresponding calamitic monomers 4aâ€“b (see Table 1) and those of the dimers 1aâ€“b.Â A basic question is whether by the combination of a bent-core unit and a calamitic unit also typical phases of these structure classes occur. Based on fingerprint textures of the bent-core nematic (BCN) LC, the diffraction angle could be adjusted by an external electric field and continuously changed [18,19]. In addition, this type of grating can form in planar cells without special treatment and shows significant potential applications for manipulating light such as diffraction optics, laser displays, beam shaping or steering, switchable holograms, and adaptive microdevices.Â 32. M. R. Dodge, R. G. Petschek, C. Rosenblatt, M. E. Neubert, and M. E. Walsh, â€œLight scattering investigation above the nematic-smectic-A phase transition in binary mixtures of calamitic and bent-core mesogens,â€ Phys. Rev. E 68(3), 031703 (2003). [CrossRef] [PubMed].