Abstract Submitted
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Induced Mesophase in Mixtures of Photopolymerizable Hyperbranched Polyester and Liquid Crystal Mesogen[1] NAMIL KIM, THEIN KYU, University of Akron, MAMI NOSAKA, HIROTO KUDO, TADATOMI NISHIKUBO, Kanagawa University — Phase behavior of a mixture of eutectic liquid crystals (E7) and hyperbranched polyester (HBPEAc-COOH) has been investigated using polarized optical microscopy and differential scanning calorimetry. The observed phase diagram is an upper azeotrope, exhibiting the coexistence of nematic + isotropic phase in the vicinity of 90∼110°C above the clearing temperature of neat E7 (60°C). With decreasing temperature a focal-conic fan shaped texture develops in the composition range of 70∼90 wt% of E7, suggestive of induced smectic S_m-A phase in the mixture containing no known smectic phase in their neat forms. Wide angle x-ray diffraction (WAXD) technique revealed the existence of higher order mesophase(s). The phenomenon of induced mesophase in the hyperbranched polyester/E7 system will be discussed.

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