

Abstract

Photopolymerization-induced phase separation (photo-PIPS) is a phenomenon in which the liquid crystal (LC)/polymer composites are separated by a reactive monomer containing acrylate groups on both sides under ultraviolet (UV) irradiation. In order to reach better results, we changed substituent group on rigid core. For electro-optical characteristics, such as V-T curves, response time and contrast ratio, we were trying to make more exact dates. For surface morphologies, we used SEM surface analytical instrument as test cell was realized. Among these results, we suggested that the monomer structure play a important role between E-O performances and morphology.

Monomer STD02 shows fastest response time, and monomer M3 exhibits slowest one. As a result for roughness, it's the same with response time. From SEM photograph, the beadlike morphology was obtained from monomers without spacers. On the other hand, the filberlike morphology was obtained from monomers with spacers. It's suggested that the more harder structure will lead to the former, and the more softer structure will lead to the latter.