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器件制备技术及器件物理

交联剂对PDLC膜电-光性能的影响

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摘要:

在PDLC薄膜中, 聚合物网络网孔的大小直接影响着PDLC薄膜的电-光性能。该实验选用光可聚合单体/交联剂/液晶复合材料, 经紫外光照射制备PDLC薄膜, 研究了交联剂对PDLC薄膜电-光性能的影响。在混合物体系中引入长柔性链的PEGDA1000和短分子链的BDDA, 影响了聚合物网络的微观形貌。交联剂分子链的长短对聚合物网络网孔的大小有明显的影 响, 进而影响了PDLC膜的电-光性能。

关键词: 聚合物分散液晶 交联剂 聚合物网络 透过率

Effects of Crosslinking Agents on Electro-optical Performances of PDLC Films

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Abstract:

The morphology of polymer dispersed liquid crystal (PDLC) has a major impact on its electro-optic properties. The PDLC was prepared by photochemical polymerization from UV-curable monomers/crosslinking agent/initiator/LC mixture. The influences of the chain length of crosslinking agents on the PDLC system have been studied. The microstructures of the PDLC were strongly influenced by the insertion of polyethylene glycol (1000) diacrylate (PEGDA 1000) crosslinker, relatively long and flexible branch, and 1,4-butanedioldiacrylate (BDDA) crosslinker along the network bone. The chain length of crosslinking agents have a significant effect on the LC domain size, and then influences the electro-optic properties of PDLC.

Keywords: PDLC crosslinking agent polymer network transmittance

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