

### 32-35 Photochemical switching behavior of liquid crystalline polymer networks containing azobenzene molecules

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Photoresponsive liquid crystalline polymer networks with macroscopically uniaxial molecular orientation were prepared by polymerizing mixtures of liquid crystalline mono- and diacrylates and an azobenzene compound in a homogeneous glass cell at a nematic phase. The polymer networks showed an enantiotropic phase transition from an anisotropic phase to an isotropic phase as well as high transparency. The photoisomerization of the azobenzene compound resulted in a change in a birefringence. The photochemical change in the birefringence was investigated by using a Xe lamp and a single pulse light from a Nd:YAG laser as light sources. We observed a response time in the range of a few microseconds and a decay time in the range of a few hundred microseconds. The optical switching behavior depended on the cross-linking density of the liquid crystalline polymer networks.

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