

Investigation on the Photopolymerization of epoxy/acrylate based monomer films on poly styrene-co-methylmetacrylate

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In the recent development of holography recording system, recording media materials are place a vital role in storage process. The holography recording media is generally consists of monomers, binder polymer, photoinitiator, coinitiator, and sensitizers. Among the monomers, epoxide based monomers are reported scarcely compared to acrylates in photopolymerization for high refractive index modulation under the interference lights. In the present work, we investigate the diffraction efficiency and holographic data storage process of photopolymerization properties based on epoxide/acrylate monomers in poly(styrene-co-methylmethacrylate) (PSM) media have higher viscosity and transparency. Photopolymer were prepared by dispersing the mixture of the above two monomers in a solution of polymer containing a photoinitiator and sensitizer. The holographic recording properties of the resultant photopolymer film studied by using a visible laser source at room temperature. From the above studies, we can optimize the composition of monomers, binder, initiator and sensitizer for obtaining the higher efficiency of diffraction intensities of prepared photopolymer film.