

**Study on the relationship between polymer miscibility and optical properties of a  
photopolymer  
for 3D optical data storage device**

김원선\*, 정용철, 장형석, 박정기  
한국과학기술원  
(sunni@kaist.ac.kr\*)

Photopolymers are an attractive holographic material candidate for high-density data storage, optical filters, and display applications. Photopolymers gained great attention as a promising candidate materials for the holograms due to their relatively large refractive index modulation ( $\Delta n=10^{-2}$ ), high sensitivity, and low cost. However, most research works related to photopolymers are focusing on the holographic devices utilizing holographic materials, and thus the investigations on the materials itself for high-performance photopolymer, which guarantees the performance of holographic devices, cannot gained much attentions as much. In the present work, we investigated the relationship between polymer-polymer miscibility and optical properties of photopolymer in detail using thermal analysis, scanning electron microscope and optical property measurement.