

Zinc oxide nanoparticles added polymerization and application as ophthalmological material

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This study was done for the preparation of macromolecular material with UV-blocking effect by adding ZnO nanoparticles to HEMA(ethylene glycol dimethacrylate), MA (methacrylic acid), and MMA(methyl methacrylate). ZnO nanoparticles was used as an additive and ophthalmic copolymer containing HEMA, MA and MMA was copolymerized with the cross-linker EGDMA and the initiator AIBN. The size of ZnO nano particles within copolymer were found to be 10~20 nm by FE-SEM. The physical properties of the copolymer were analyzed by measuring refractive index, water content, tensile strength and visible transmittance. The results of the measurement showed that the refractive index, water content and visible transmittances of the hydrogel lens polymer was 1.451~1.470, 26~32% and 87~90% respectively. Also, the transmittance for UV was reduced significantly in combinations added ZnO nanoparticles.