

Preparation of quantum dot/polymer/graphene oxide microsphere with enhanced stability

윤철상, 이강택†

연세대학교

(kilee@yonsei.ac.kr†)

Semiconductor nanocrystals, which are referred to as quantum dots(QDs), have been extensively applied to various areas. Especially, QDs have been attracted as alternative phosphors of white light-emitting diodes(WLEDs). When QDs are used in LED applications, they are usually embedded in packaging materials for protection. Nevertheless, in long-term operation of LED devices, QDs can suffer from irreversible deterioration of photoluminescence properties because of high temperature and moisture. So, We prepared QD/ poly(methyl-methacrylate)(PMMA) /graphene oxide(GO) microsphere composite particles by pickering emulsification for stability enhancement. GO sheets can form the particle-stabilized pickering emulsion as a surfactant between oil-water interfaces. With synthesized microsphere, we fabricated microsphere/silicone composite for LED applications. We operated LED with microsphere under harsh environment and estimated LED stability enhancement.