

UV-curable QD acrylate resin and its application to Inkjet printing

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Quantum dot (QD) has attracted great interests to be the next-generation display material in optoelectronic devices because of its high quantum yield, color gamut and stability. To apply QD into devices, silicone polymers and acrylate polymers are frequently selected as a matrix of QD layer. Especially, polymethylmethacrylate (PMMA) shows great optical and chemical properties such as high transparency, thermal stability, and refractive index. To apply QD into QD-acrylate resin for LED, it is mandatory to make QD highly dispersed in QD acrylate nanocomposite. Usually, QD shows poor dispersity in methyl methacrylate (MMA) monomer which causes optical property degradation of QD. In this work, we present a novel process of preparing inkjet printable, UV-curable QD acrylate resin and its application to QD-LED devices by applying acrylate monomer which has high affinity with QD.