

Solution processed ZnO Nanoparticles Synthesis and Its Ink-Formulation

홍아란¹, Mohammad Vaseem¹, 김희망², 한윤봉^{2,1,*}
¹전북대학교 BIN융합공학과; ²전북대학교 화학공학과
(ybhahn@jbnu.ac.kr*)

From material points of view with wide area application, development of n- or p-type semiconductors is one of the key technologies for p-n junction based devices as diodes, transistors, and light emitting diodes. As our interest in ZnO NPs suited for inkjet printing, we have successfully synthesized well dispersed uniform ZnO NPs with particle size $10\pm 2\text{nm}$ by solution process. As-synthesize ZnO NPs were investigated with details in terms of its structural and optical characterization. Moreover, as-synthesized ZnO NPs were formulated as an ink using mixed solvents of DI water, ethanol, IPA and EG. Further, using as-formulated ZnO ink we have successfully demonstrated jetting and writing of ZnO pattern lines on Si/SiO₂ substrate at room temperature. Moreover, microwave-assisted annealing (MAA) effect on printed line feature has also been discussed.