

CuInSe₂ 나노 입자 합성 및 이를 이용한 광흡수층 박막 제조

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Synthesis of CuInSe₂ nanoparticles and its application to the absorber layer for thin films solar cells

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Abstract : Chalcopyrite semiconductor CuInSe₂ nanoparticles were prepared using a low temperature colloidal route by reacting the starting materials (CuI, InI₃ and Na₂Se) in solvents. After synthesised CuInSe₂ nanoparticles precursors were mixed with organic binder for the viscosity of the precursor slurry to be suitable for the doctor blade method. The mixture of CuInSe₂ and binder was deposited onto molybdenum-coated sodalime glass substrates to form thin film. The precursor thin films were preheated on the hot plate to remove remaining solvents and binder material. After subsequent thermal processing of the thin film under a selenium ambient, CuInSe₂ absorber layer with grain size significantly larger than that of the nanoparticles was formed.

Key words : Solar Cell(태양전지), Nanoparticle(나노입자), CuInSe₂(CuInSe₂)