

Effects of synthesis temperature for Cu-In-Ga-Se nano-powders on CIGS film formations after annealing process

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Cu-In-Ga-Se nano-powders were synthesized at low temperature by colloidal route. CuCl in ethanol, InCl₃ and GaCl₃ in n-propanol, and Se in ethylene diamine were vigorously mixed at different temperature range from 90 to 110 degree. The as-synthesized powders were separated using centrifugation process and then the powders were cleaned several times using methanol and acetone. As-synthesized nano-powders were dispersed in iso-butanol to obtain a nano-ink and thin films were prepared on Mo-coated glass using spray method. And then, the prepared films were annealed to obtain CIGS phase at 550 oC for 10 min.

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