

Preparation of CuAlO₂ Thin Films on Si or Sapphire Substrate by Sol-Gel Method Using Metal Acetate or Nitrate

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Abstract : CuAlO₂ thin films are prepared on Si or sapphire substrate by sol-gel method using two kinds of sols. One is combination of Cu acetate and Al acetate basic, and the other is Cu nitrate and Al nitrate. In the case of acetate sol, XRD peaks of CuAlO₂ observed at annealing temperature of 800-950 °C on both Si and sapphire substrates. In contrast, in the case of the films prepared using nitrate on Si substrate, XRD peaks of CuAlO₂ have been observed only at the annealing temperature of 800-850 °C. At annealing temperature of 850 °C, peaks of other species have been observed beside the CuAlO₂ peaks, then, the CuAlO₂ peaks disappeared at annealing temperature of 900 °C with increasing in intensity of the other peaks. Intensity of the other peaks decreased at annealing temperature of 950 °C with appearance of broad SiO₂ peak. In the present, we ascribe these peaks as metal silicide.

Keywords : CuAlO₂, silicide, thin Films, transparent conducting oxide

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