

Study on the formation of SnS absorption layer by rapid thermal annealing of tin precursor and evaporative sulfur

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The existing Sn precursor fabrication method, which was preceded for the formation of the SnS absorber layer, caused the problem that the bottom part of the absorber layer was not sulfurization properly after the sulfurized reaction. This was an obstacle to the formation of a single phase SnS absorption layer and caused the formation of various secondary phases such as SnS₂ and Sn₂S₃. In this study, a precursor was prepared in the form of a Sn / S / Sn / S sandwich to produce a uniform SnS absorber layer, and then an annealing experiment was performed. Experiments were carried out with various parameters such as the deposition thickness of Sn and S, the lamination morphology, and the annealing time under H₂S atmosphere, and a single SnS absorber layer was obtained. The structural, morphological, and optical properties of the SnS absorber layer formed through various analytical methods such as SEM, XRD, RAMAN analysis and UV-VIS were evaluated.