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Effect of Substrate Temperature on Spray Deposited Zinc Sulphide Thin Films(Article)

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Abstract

Thin films of Zinc sulphide (ZnS) on glass substrate were prepared by chemical spray pyrolysis technique using precursor solutions of zinc chloride and n–n dimethyl thiourea at substrate temperatures of 598 K and 623 K. X ray diffraction analysis exposed the polycrystalline nature with growing crystallinity with respect to substrate temperature. The preferential orientation growth of ZnS compound increased with relatively higher substrate temperature having hexagonal structure along (019) plane. At 623 K, The size of the Zinc sulphide crystallite with nano dimension was determined using the Full Width Half Maximum value of the Bragg peak. The surface morphology had been analyzed using scanning electron microscope. The compositional analysis had been observed by Energy Dispersive Analysis by X-ray spectrum. FTIR study had been carried out for the bond evaluation. © 2022 NSP Natural Sciences Publishing Cor.

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