

TW-P025

Enhanced Performance in Isoindigo Based Organic Small Molecules Field Effect Transistors Using Solvent Additives

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Isoindigo based small molecules have attracted much attention in the field of optoelectronic devices due to their broad absorbance and high charge carrier mobilities. Herein, we investigate the field effect transistor characteristics of a series of isoindigo based donor-acceptor-donor (D-A-D) small molecules containing a variable number of thiophene moieties (named IDT, ID2T, and ID3T) which form pi-bridges between the D and A moieties and a different donor moiety (IDED). In order to improve the carrier mobility, 1-chloronaphthalene (CN) and 1,8-diodooctane (DIO) as solvent additives were used. The film morphology, crystallinity and optical properties of the materials processed with various concentrations of solvent additives were investigated through atomic force microscopy (AFM), X-ray diffraction (XRD) and UV-vis absorption spectroscopy.

Keywords: isoindigo, additive

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Structural Characteristics of Spray-coated Poly (vinylidene fluoride) Thin Films Prepared with Different Organic Solvents

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Poly (vinylidene fluoride) thin films were deposited by a spray-coating technology. Two organic solvents with different boiling point were used to prepare the mixture solution for spray coating process: N-Methylpyrrolodone (B.P.=202°C); Tetrahydrofuran (B.P.=66°C). Post-deposition annealing temperature was varied for the spray-coated Poly(vinylidene fluoride) thin films. Structural characteristics of the thin films were comparatively investigated by FT-IR and XRD in relation with the organic solvent and post-deposition annealing temperature.

Keywords: Poly (vinylidene fluoride), spray-coating, N-Methylpyrrolodone, Tetrahydrofuran