

Supporting Information for

Universal Processing Additive for High-Performance Polymer Solar Cells

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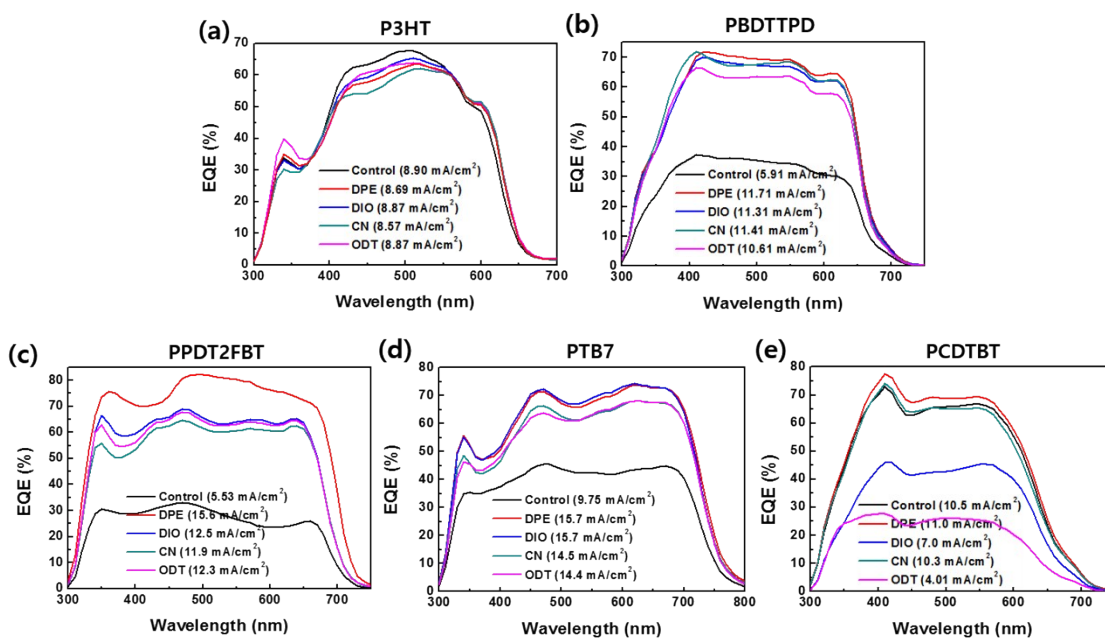


Fig. S1 EQE spectra of PSCs based on (a) P3HT, (b) PBDTTPD, (c) PPDT2FBT, (d) PTB7 and (e) PCDTBT. Note that calculated J_{SC} is indicated in parentheses.

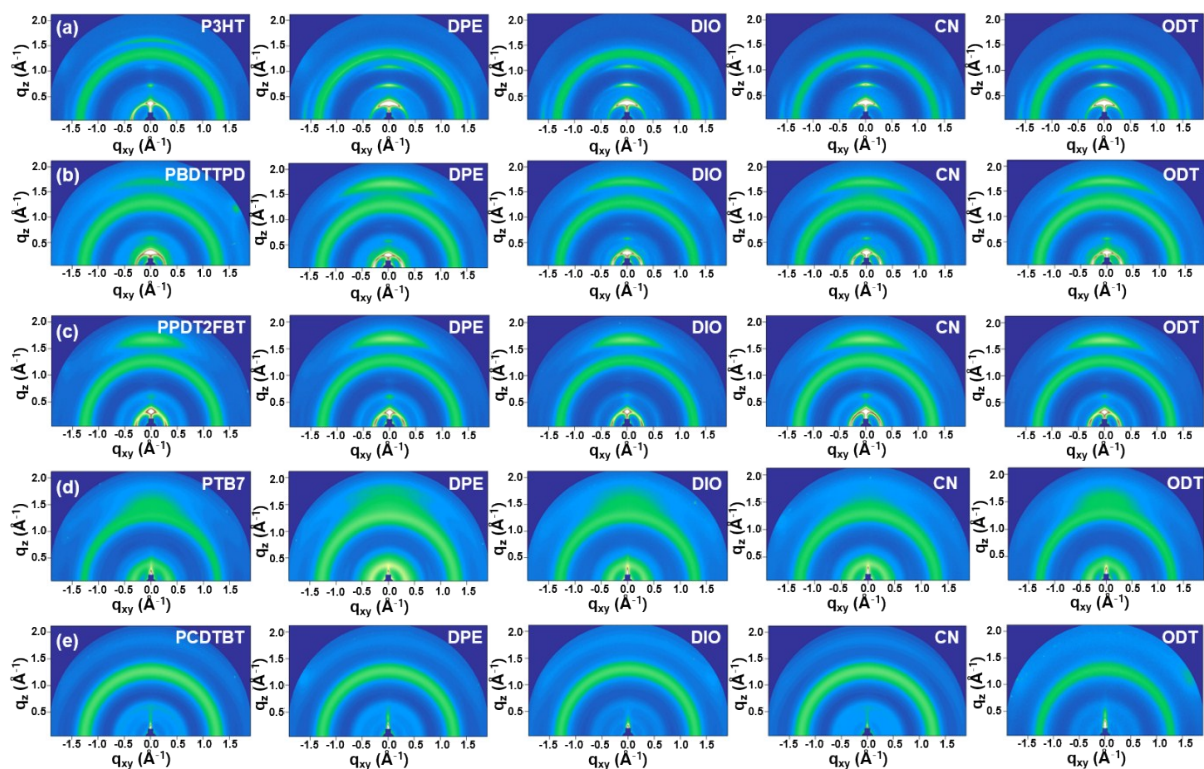


Fig. S2 GIWAXS patterns of (a) P3HT, (b) PBDTTPD, (c) PPDT2FBT, (d) PTB7, and (e) PCDTBT BHJ films without processing additives (1st column), and with DPE (2nd column), DIO (3rd column), CN (4th column), and ODT (5th column) on Si substrates.

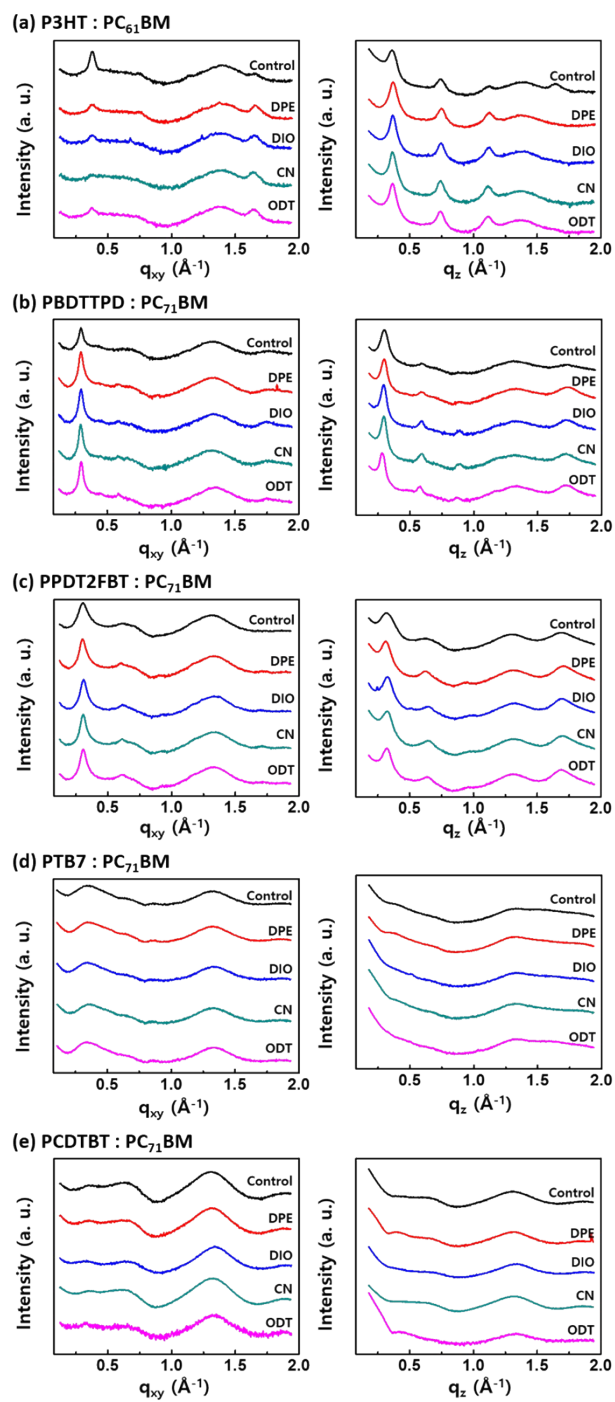


Fig. S3 GIWAXS linecut profiles of (a) P3HT, (b) PBDTTPD, (c) PPDT2FBT, (d) PTB7 and (e) PCDTBT BHJ films.

Table S1 Crystallographic parameters of polymer:PCBM BHJ films.

Polymer	Additive	GIWAXS parameters							
		Lamella spacing		π - π stacking		Lamella spacing		π - π stacking	
		(q _{xy} direction)		(q _{xy} direction)		(q _z direction)		(q _z direction)	
		q [$\text{\AA}^{-1}$]	d [$\text{\AA}$]	q [$\text{\AA}^{-1}$]	d [$\text{\AA}$]	q [$\text{\AA}^{-1}$]	d [$\text{\AA}$]	q [$\text{\AA}^{-1}$]	d [$\text{\AA}$]
P3HT	Control	0.3786	16.5958	1.6565	3.7930	0.3625	17.3329	1.6465	3.8161
	DPE	0.3768	16.6751	1.6568	3.7924	0.3703	16.9678	-	-
	DIO	0.3750	16.7552	1.6489	3.8105	0.3672	17.1111	-	-
	CN	0.3637	17.2757	1.6424	3.8256	0.3647	17.2284	-	-
	ODT	0.3745	16.7775	1.6426	3.8251	0.3656	17.1859	-	-
PBDTPD	Control	0.2943	21.3496	1.7662	3.5575	0.3004	20.9161	1.7355	3.6204
	DPE	0.2932	21.4297	1.7592	3.5716	0.2982	21.0704	1.7357	3.6200
	DIO	0.2942	21.3569	1.7472	3.5961	0.2941	21.3641	1.7251	3.6422
	CN	0.2921	21.5104	1.7647	3.5605	0.2962	21.2126	1.7221	3.6486
	ODT	0.2947	21.3206	1.7431	3.6046	0.2812	22.3442	1.7207	3.6515
PPDT2FBT	Control	0.3049	20.6074	-	-	0.3193	19.6780	1.6888	3.7205
	DPE	0.3015	20.8397	1.7168	3.6598	0.3123	20.1191	1.7047	3.6858
	DIO	0.3102	20.2553	-	-	0.3250	19.3329	1.6903	3.7172
	CN	0.3068	20.4797	1.7128	3.6684	0.3241	19.3866	1.6965	3.7036
	ODT	0.3083	20.3801	-	-	0.3198	19.6472	1.6918	3.7139
PTB7	Control	0.3480	18.0551	-	-	-	-	-	-
	DPE	0.3478	18.0665	-	-	0.3638	17.2710	-	-
	DIO	0.3450	18.2121	-	-	-	-	-	-
	CN	0.3573	17.5852	-	-	-	-	-	-
	ODT	0.3455	18.1858	-	-	-	-	-	-
PCDTBT	Control	0.3517	17.8652	-	-	-	-	1.8735	3.3537
	DPE	0.3451	18.2069	-	-	0.3948	15.9149	1.8768	3.3478
	DIO	0.3327	18.8854	-	-	-	-	1.8867	3.3303
	CN	0.3587	17.5165	-	-	-	-	1.8701	3.3598
	ODT	0.3297	19.0573	-	-	0.4182	15.0244	-	-