

Supporting Information

Improving the Efficiency of Polymer Solar Cells Based on Furan-Flanked Diketopyrrolopyrrole Copolymer via Solvent Additive and Methanol Treatment

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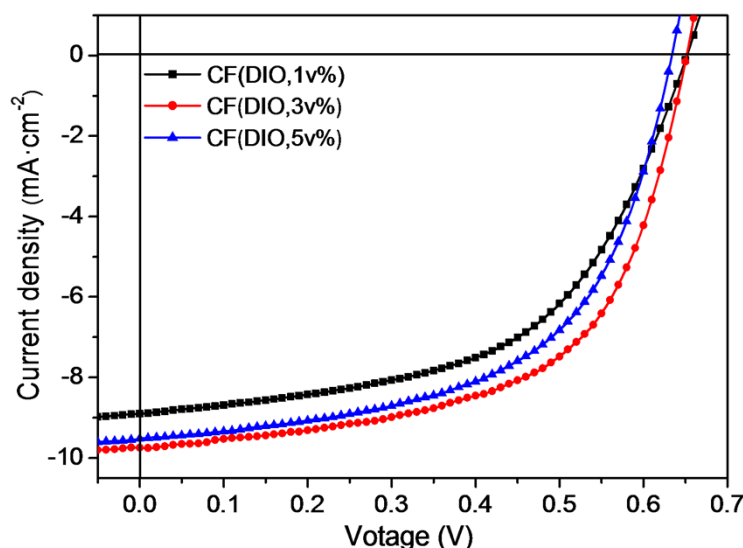


Figure S1. Current density versus voltage (J - V) characteristics of PDVF-8:PC₇₁BM PSCs from CF+DIO with different concentrations of DIO.

Table S1. Performances of PDVF-8:PC₇₁BM PSCs from CF+DIO with different concentrations of DIO.

Solvents	J_{sc} [mA cm ⁻²]	V_{oc} [V]	FF [%]	PCE [%]		R_s [Ω cm ²]	R_{sh} [Ω cm ²]	Rectification Ratio
				Max.	Aver.			
CF+1vol%DIO	8.95	0.650	0.544	3.17	3.12	15.2	785.9	8.3×10^1
CF+3vol%DIO	9.73	0.650	0.590	3.73	3.69	7.2	910.6	4.0×10^2
CF+5vol%DIO	9.55	0.630	0.577	3.47	3.37	8.4	855.9	4.6×10^1
CF+3vol%DIO (MT)	10.30	0.655	0.597	4.03	3.91	7.0	956.1	6.0×10^2

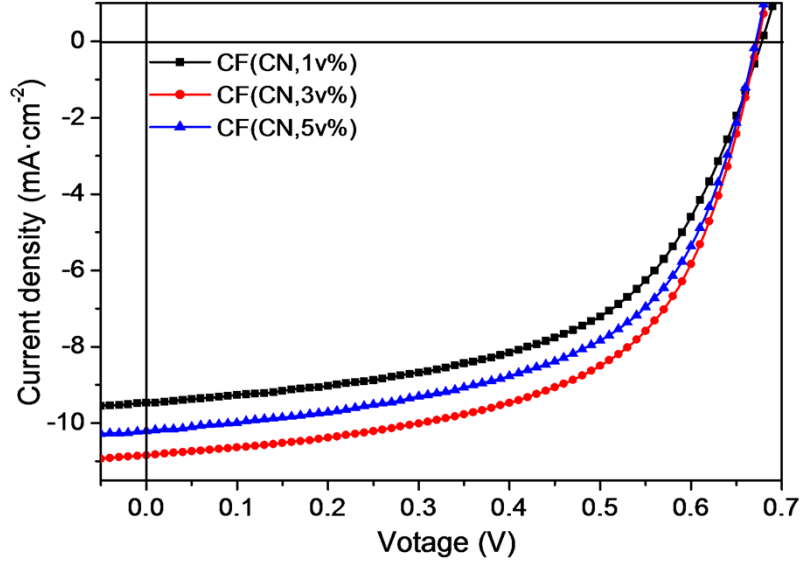


Figure S2. Current density versus voltage (J - V) characteristics of PDVF-8:PC₇₁BM PSCs from CF+CN with different concentrations of CN.

Table S2. Performances of PDVF-8:PC₇₁BM PSCs from CF+CN with different concentrations of CN.

Solvents	J_{sc} [mA cm ⁻²]	V_{oc} [V]	FF [%]	PCE [%]		R_s [Ω cm ²]	R_{sh} [Ω cm ²]	Rectification Ratio
				Max.	Aver.			
CF+1vol%CN	9.46	0.675	0.568	3.63	3.58	12.3	810.8	3.5×10^2
CF+3vol%CN	10.89	0.670	0.583	4.26	4.18	7.7	868.7	1.2×10^3
CF+5vol%CN	10.20	0.670	0.578	3.95	3.91	7.5	838.2	4.0×10^2
CF+3vol%CN (MT)	11.64	0.670	0.601	4.69	4.59	6.2	1083.5	2.2×10^3

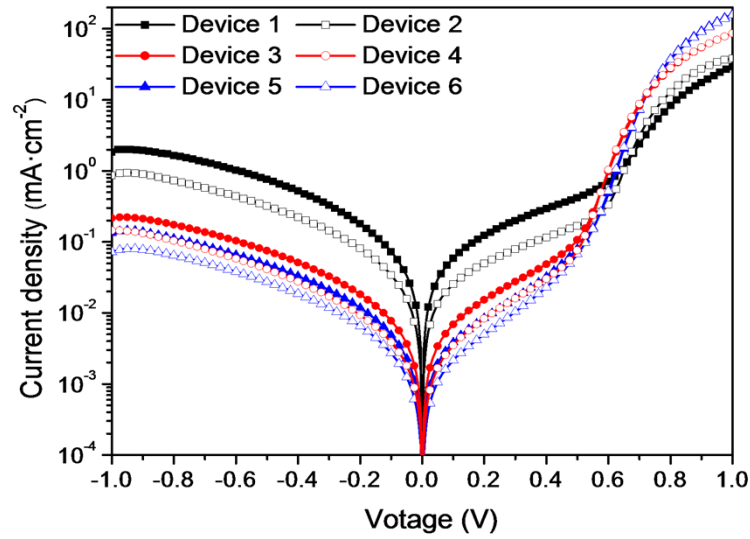


Figure S3. Current density versus voltage (J - V) characteristics of Device 1-6 in the dark.

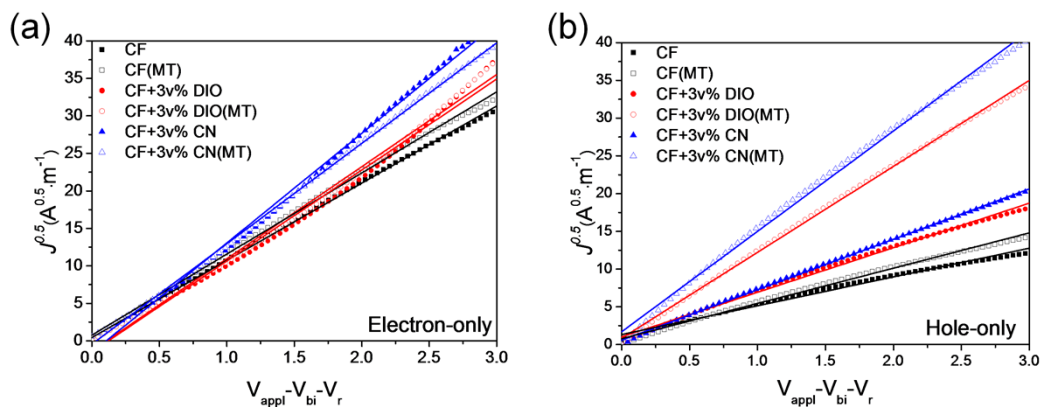


Figure S4. $J^{0.5}$ vs. $V_{\text{appl}} - V_{\text{bi}} - V_r$ plots for the electron-only (a) and the hole-only devices (b) from different solvent/solvent mixture without or with MT.

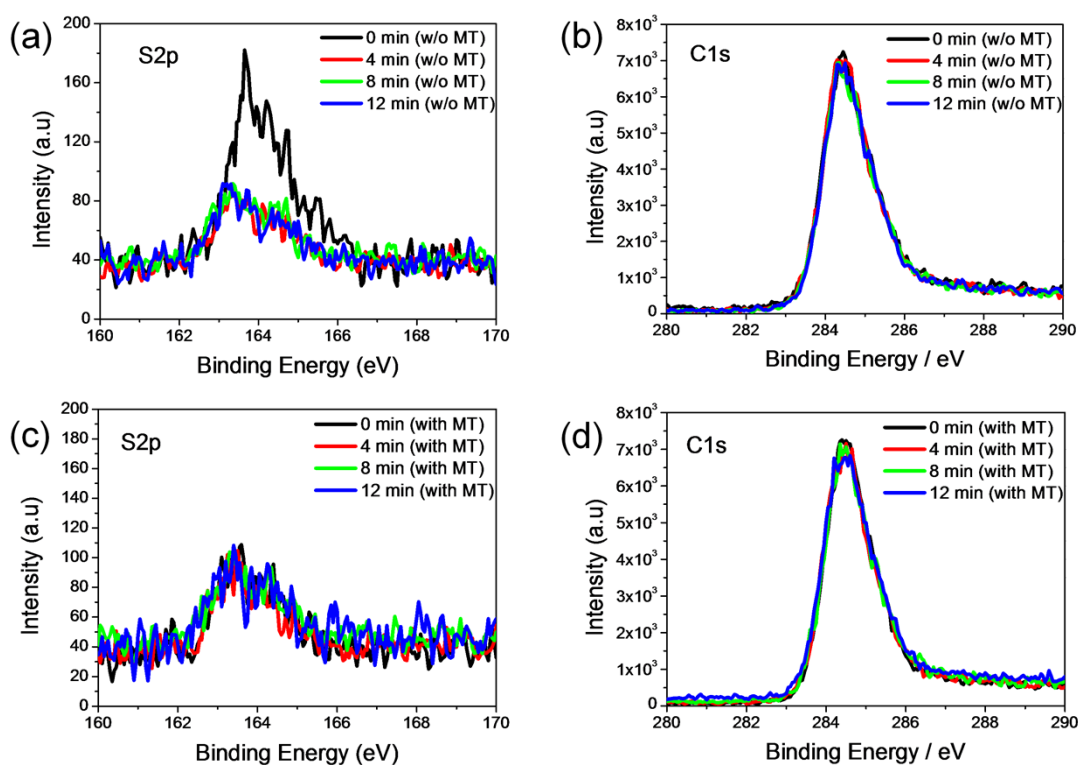


Figure S5. S2p and C1s XPS spectra of PDVF-8:PC₇₁BM film spin-coated from CF+3vol% CN without (a and b) and with (c and d) MT in different etching time.