Supporting Information

Optoelectronic Properties of Hyperbranched Polythiophenes

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Figure S1. Differential scanning calorimetry measurements for p3T-TCM, second heating and cooling cycle, scan rate 10 K/min.



Figure S2. p3T-TCM film spin coated on Pt, measured in acetonitrile / TBAPF₆ (0.1M), 20 mV/s, reference electrode Ag/AgCl, external standard Fc/Fc+; anodic and cathodic cycles were measured separately to eliminate charge trapping effects.



Figure S3. p4T-TCM film spin coated on Pt, measured in acetonitrile / TBAPF₆ (0.1M), 20 mV/s, reference electrode Ag/AgCl, external standard Fc/Fc+; anodic and cathodic cycles were measured separately to eliminate charge trapping effects.



Figure S4. Rieke-P3HT film spin coated on ITO from ortho-DCB at 2000 rpm, measured in acetonitrile, 20 mV/s, reference electrode Ag/AgCl, external standard Fc/Fc^+ ; anodic and cathodic cycles were measured separately to eliminate charge trapping effects.

Table S1. Further solar cell data of p3T-TCM with PCBM as photoactive layer obtained from blends spincoated from different solvents. TCM = chloroform, CB = chlorobenzene, o-DCB = o-dichlorobenzene

Photoactive Blend	Solvent	Conc. [mg/ml]	η [%]	V _{OC} [mV]	J _{SC} [mA/cm ²]	FF
p3T-TCM: PCBM 1:2	TCM	21	0.17	700	0.95	0.26
	CB	21	0.45	660	2.17	0.33
	CB	25	0.26	649	1.44	0.28
	o-DCB	18.8	0.38	649	2.00	0.39



Figure S5. Top: Characteristic transistor curves of p4T-TCM measured at gate voltages from -10 V to -60 V in intervals of 10 V. Bottom: Transfer characteristics of p4T-TCM measured at a source-drain voltage of -60 V. Linear plot and square root plot of the drain current versus the gate voltage.