PBTTT-14

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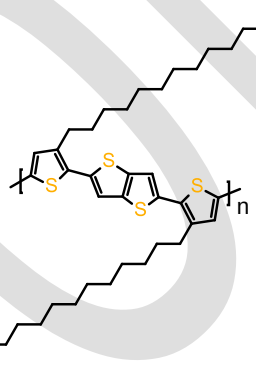
Organic Nano Electronic(ONE=1) Materials for these who understand

Technical Data Sheet

1M Material:	OS0198
Other Names	PBTTT-14, PBTTT-C14, PB14TTT
Remark:	Liquid crystalline polymer, reproducible molecular weight
CAS#	888491-19-8
Chemical name:	Poly(2,5-bis(3-tetradecylthiophen-2-yl)thieno[3,2-*b*]thiophene)
Chemical structure:	



Grade	Low Mw	Medium	High Mw
Appearance	Brown	Deep Brown	Purple-brown
Molecular Weight (Mw)	< 30K	30-50K	>60K
PDI	2.0	2.5	2.5
Solubility (extract solvent)	DCM	CF	CB
Availability	In stock	In stock	In stock

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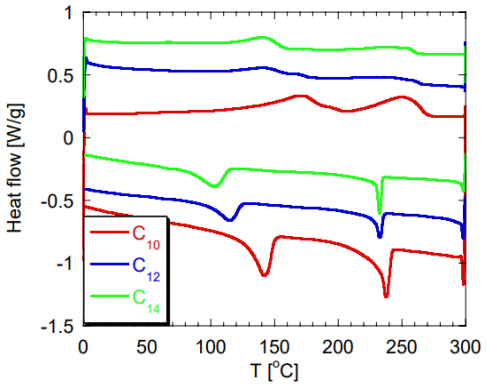
References Data Selection Nature Materials Vol 5, 329, 2006



DSC of polymers during the second heating/cooling scan at 10°C/min.

Table 1 Polymer properties. $T1\uparrow$ and $T2\uparrow$ correspond to the low- and high-temperature endotherms on heating (at 10 °C min^{-1}) respectively, and $T2\downarrow$ and $T1\downarrow$ correspond to the high- and low- temperature exotherms on cooling (10 °C min^{-1}) respectively. IP was measured by an ambient ultraviolet photoelectron spectroscopy (UPS) technique.

Sidechain	Mn/Mw	λ_{max} (nm)	IP (eV)	$T1\uparrow$ (°C)	$T2\uparrow$ (°C)	$T2\downarrow$ (°C)	$T1\downarrow$ (°C)	Cooling enthalpy $T2\downarrow$ (J g^{-1})	Cooling enthalpy $T1\downarrow$ (J g^{-1})	$\mu_{max\ sat}$ (N_2) (cm^2 V^{-1} s^{-1})	$\mu_{max\ lin}$ (N_2) (cm^2 V^{-1} s^{-1})	ON/OFF ratio (N_2)
C10	28,500/51,300			171	251	237	142	13.1	18.5	0.30	0.22	10^6
C12	29,600/54,000	547	5.1	143	244	233	115	10.1	20.5	0.30	0.11	10^6
C14	33,000/59,600			141	248	233	102	11.3	26.5	0.63	0.39	$>10^7$
										0.72*	0.20*	$>10^{6*}$

* Different device geometry ($W = 2{,}000$ μm, $L = 5$ μm) and dielectric thickness (200 nm).

Other Suggested Materials

Reference or common name	1M Code	CAS No.
PBTTT-12, PBTTT-C12	OS0187	888491-18-7
pBTTT-C16, PBTTT-16	OS0844	958239-84-4
DTT-DPP, PDPP2T-TT-OD, OD-PDPP2T-TT	OS0662	1260685-66-2
IIDDT, IIDDT-C20, PIID-BT	OS0668	1351240-66-8
CDT-BTZ-C16, P4	OS0670	1079041-67-0
F4TCNQ	OS9675	2662369-67-5
F6TCNNQ, F6TNAP	OS2156	912482-15-6

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