



Novel Small Molecular Material for Solution-Processed High Efficient Organic Solar Cells

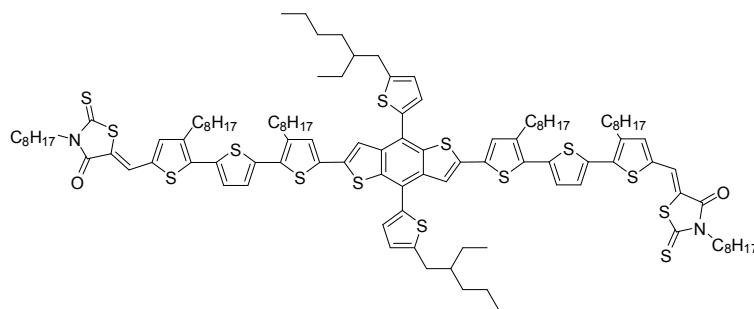
Product Specifications

LT-S9123

SMPV1

Formula	$C_{114}H_{152}N_2O_2S_{14}$
M.W.	2031.35 g/mole
Absorption_{max}	508nm (in $CHCl_3$)
Absorption_{onset}	607nm (in $CHCl_3$)
HOMO (eV)	-5.51 eV
LUMO (eV)	-3.64 eV
Soluble in	$CHCl_3$, chlorobenzene

Reference : Scientific Reports 3, Article number: 3356 (2013)



Features

- SMPV1 exhibits great solubility in organic solvents and shows a rather good thermal stability up to 402°C under argon, with a melting point at 185°C.
- SMPV1 single junction solar cells exhibited a power conversion efficiency of 8.1% with a V_{oc} of 0.94 V, a J_{sc} of 12.5 $mA\ cm^{-2}$, and a notable FF of 69%.
- A homo-tandem solar cell based on SMPV1 was constructed with a novel interlayer consisting of bi-layer conjugated polyelectrolyte, demonstrating an unprecedented PCE of 10.1% with a V_{oc} of 1.82 V, a J_{sc} of 7.70 $mA\ cm^{-2}$, and a very notable FF of 72%.

Device Application

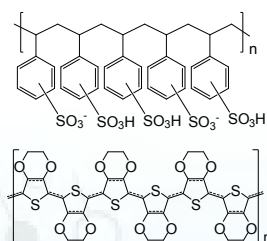
Single-cell photovoltaic devices:

ITO/PEDOT:PSS(40nm)/SMPV1:PC71BM(120nm)/Ca(20nm)/Al

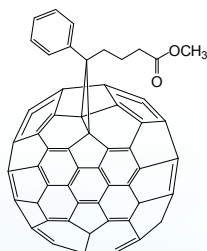
Tandem photovoltaic device:

ITO/PEDOT:PSS(40nm)/SMPV1:PC71BM(80nm)/CPE1(5nm)/CPE2(5nm)/M-PEDOT:PSS/SMPV1:PC71BM(100nm)/CPE3/Al

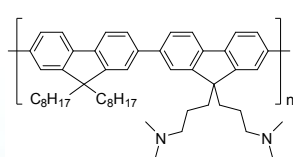
Related products from Lumtec :



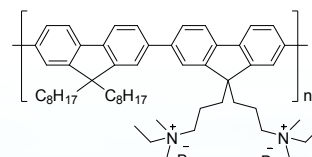
LT-PS001 PEDOT:PSS



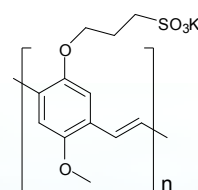
LT-S923 PC₇₁BM



LT-N4027 PFN-DOF



LT-N878 PFNBr



CPE2