



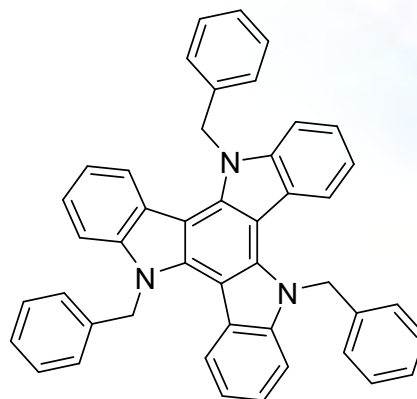
Novel Interfacial Materials for Organic Photovoltaic Cells (OSCs)

Product Specifications

LT-S9084 TBDI

Formula	$C_{45}H_{33}N_3$
Molecular Weight	615.76 g/mole
Tm	333 °C
Absorption	317nm
Emission	394nm
HOMO (eV)	-5.25 eV
LUMO (eV)	-1.98 eV
Hole mobility	$5.95 \times 10^{-3} \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$ (at 0.3 MV cm^{-2} electric field)

Reference : *J. Mater. Chem. A*, 2013, 1, 4077–4082



Features

- TBDI have good transparency in the visible spectrum, high hole mobility, and compatible highest occupied molecular orbital (HOMO) values with the donor material, which make them excellent hole-extraction layers (HELs) for OSCs.
- TBDI possess a high mobility of $5.95 \times 10^{-3} \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$ at 0.3 MV cm^{-2} electric field, which is higher than that of NPB ($2.70 \times 10^{-4} \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$).
- The (SubPc,SubNc)/C₆₀ OSCs with a TBDI as HEL show V_{oc} of 1.13/0.84 V, J_{sc} of 5.69/7.95 mA cm^{-2} , an FF of 55.22/62.50% and PCE of 3.56/4.17%.
- The SubPc/C₆₀ and SubNc/C₆₀ OSCs with a TBDI as HEL show impressive 35.9% and 29.1% improvements in power conversion efficiencies compared to reference devices.

Device Application

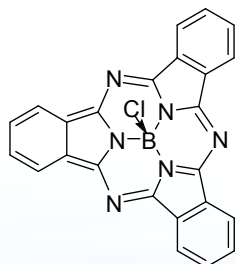
ITO/TBDI(6 nm)/SubPc(8.5 nm)/C60(31.5 nm)/BCP(8.0 nm)/Al(100 nm)

ITO/TBDI(5 nm)/SubNc(6 nm)/C60(33.5 nm)/BCP(8.0 nm)/Al(100 nm)

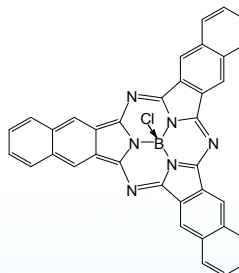
Related products from Lumtec:



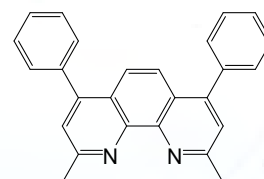
LT-S903 C₆₀



LT-S943 SubPc



LT-S947 SubNc



LT-E304 BCP