Novel bicarbazole-based Host Materials for High-Efficiency Blue Phosphorescent OLEDs with Very Low Driving Voltage



LT-N4085 BCzPh Formula C₃₆H₂₄N₂ M.W. 484.59 g/mole HOMO energy level -5.67 eV

 LUMO energy level
 -2.35 eV

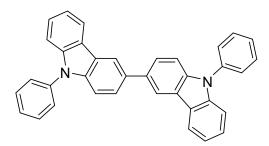
 T_g
 105 °C

 T_d (5% loss)
 399 °C

 E₇ energy level
 2.87 eV

 ΔE_{sr}
 0.45 eV

 Reference : Adv. Mater. 2012, 24, 3212–3217

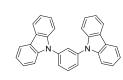


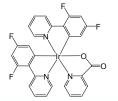
Features

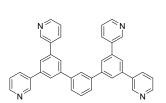
- BCzPh has very small singlet-triplet energy difference (ΔE_{sT}) of 0.45 eV, which is even smaller than that of MCP (0.49 eV), therefore, BCzPh is considered to be applicable for a blue phosphorescent OLED with a reduced operating voltage.
- BCzPh-based blue OLED exhibited high PE of 45.2 Im W¹ (43.9 cd A⁻¹, EQE 19.7%) with an extremely low driving voltage at 3.1 V at 100 cd m⁻².

Device Application

ITO/TAPC(40 nm)/FIrpic 11 wt% doped BCzPh (10 nm)/BmPyPhB(50 nm)/LiF(1 nm)/Al Related products from Lumtec :







LT-N137 TAPC

LT-E107 MCP

LT-E607 FIrpic

LT-N865 BmPyPhB

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