



Novel Carboline-Based Host Material for High-Efficiency Blue Phosphorescent OLEDs

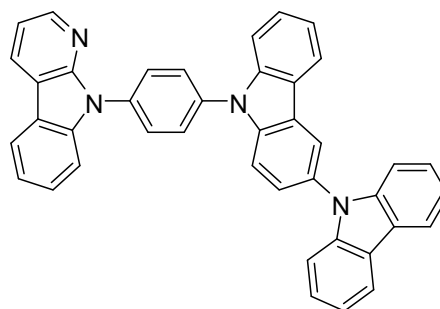
Product Specifications

LT-N4070

pBCb2Cz

Formula	$C_{41}H_{26}N_4$
M.W.	574.67 g/mole
Absorption	295 nm (in $CHCl_3$)
Photoluminescence	387 nm (in $CHCl_3$)
HOMO energy level	-5.69 eV
LUMO energy level	-2.26 eV
T_g	146 °C
T_d (5% loss)	491 °C
E_T energy level	2.93 eV

Reference : Chem. Commun. 2013, 49, 6788-6790



Features

- Novel bipolar host was prepared for high efficiency blue phosphorescent organic light-emitting diodes (PhOLEDs) with a high triplet energy level and high thermostability.
- An OLED with pBCb2Cz /6 wt%-FlrPic showed a greatly reduced operating voltage of 4.3 V at 1000 cd m^{-2} , η_p^{1000} (power efficiency at 1000 cd m^{-2}) of 28.4 lm W^{-1} (36.7 cd A^{-1} , η_{ext} 22.0%) and η_p^{max} of 34.6 lm W^{-1} (38.3 cd A^{-1} , η_{ext} 23.0%) with CIE(0.151, 0.312).
- The deep blue PhOLED (FCNlIrPic as dopant) device showed an η_p^{1000} of 8.2 lm W^{-1} (20.7 cd A^{-1} , η_{ext} 15.6%) and η_p^{max} of 10.7 lm W^{-1} (21.5 cd A^{-1} , η_{ext} 16.2%) with CIE(0.148, 0.211), respectively.

Device Application

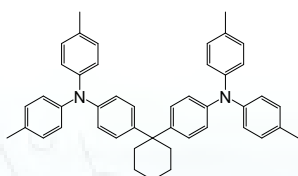
Blue PhOLED :

ITO / TAPC (45 nm)/ pBCb2Cz : 6% FlrPic (15nm)/ TmPyPB (40 nm)/ LiF (1.5 nm)/ Al

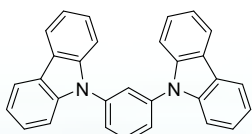
Deep Blue PhOLED :

ITO / TAPC(60nm) / MCP(10nm) / pBCb2Cz : 10% FCNlIrpic(30nm) / TmPyPB(25nm) / LiF(1.5nm) / Al

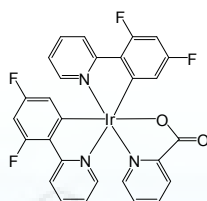
Related products from Lumtec :



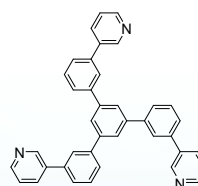
LT-N137 TAPC



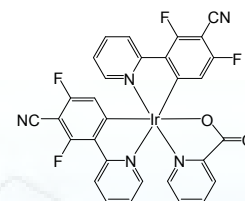
LT-E107 MCP



LT-E607 FlrPic



LT-N863 TmPyPB



LT-N664 FCNlIrPic