



Luminescence Technology Corp.

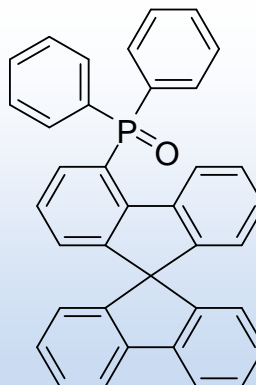
Novel Host/Electron Transport Materials for Blue Phosphorescent OLED

LT-N4049

SPPO11

Formula	$C_{37}H_{25}O_2P$
Molecular Weight	516.57 g/mole
HOMO (eV)	-6.55eV
LUMO (eV)	-2.73eV
E_t (eV)	-2.77eV

Reference : *Organic Electronics* 11 (2010) 1059–1065



New host (SPPO11) with a diphenylphosphine oxide group attached to the 4 position of the spirobifluorene was designed and synthesized.

SPPO11 show high thermo stability, the T_m and T_g of SPPO11 was observed at 314°C and 127 °C. The high T_g which induced by the steric hindrance improved the morphological stability of SPPO11. And the electron mobility of SPPO11 was also observed as $7 \times 10^{-4} \text{ cm}^2/\text{Vs}$, which indicated that SPPO11 can react as electron transport layer.

Blue-phosphorescent device having the configuration:

ITO/PEDOT: PSS(60nm)/NPB(20nm)/mCP(10nm)/SPPO11 : 10%FIrpic(30nm)/SPPO11(25nm)/LiF/Al.

A quantum efficiency of 17.5%, a current efficiency of 35.6 cd/A and a power efficiency of 24.7 lm/W were achieved at 300 cd/m².

Materials are used by qualified for testing and research only, there are not guaranteed in patent contention by customer use.

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