



# OLED 發光材料與元件

## Organic Light Emitting Materials and Devices

### 簡介 Introduction

有機發光二極體 (OLED) 技術有自發光、色彩飽和度高、高對比、反應速率快及廣視角等優點，已成為顯示與照明應用的主流技術之一。工研院材化所已開發一系列不同顏色，可應用於蒸鍍製程及溶液製程的 OLED 磷光發光材料，並製作成元件。工研院材化所也建立完整的 OLED 材料驗證平台。

Organic Light Emitting Diode (OLED) technology is emerging as a leading technology for displays and lighting. OLEDs possess key performance features including vibrant colors, high contrast ratios, full-motion video and wide viewing angles. With ITRI/MCL's proprietary phosphorescent OLED technology, vacuum thermal evaporated and printable OLEDs are under development to combine the high efficiency and potential low-cost solution processing techniques such as ink-jet printing and slot-die coating. As shown in the following tables, we unveiled advances in Vacuum thermal evaporated (VTE) and spin-coated phosphorescent OLED technology for a number of our color systems.

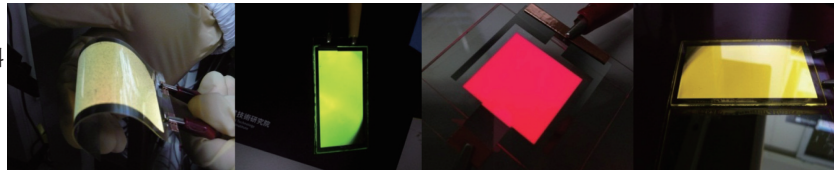
### 特色 Features

- OLED 發光材料 OLED emitting materials
- OLED 蒸鍍製程元件 OLED thermal evaporation process
- OLED 溶液製程元件 OLED solution process
- OLED 材料驗證平台 OLED materials verification platform



OLED 發光材料  
OLED Emitting Materials

使用 ITRI/MCL's 開發之材料  
製作之 OLED 元件  
OLED are produced with  
ITRI/MCL's materials



### 規格 Specifications

@ 1000 cd/m<sup>2</sup>

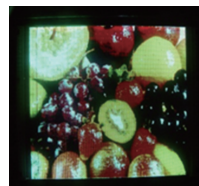
| Materials               | Blue  |      | Green |      | Yellow |      | Orange |      | Red  |      |
|-------------------------|-------|------|-------|------|--------|------|--------|------|------|------|
|                         | VTE   | Spin | VTE   | Spin | VTE    | Spin | VTE    | Spin | VTE  | Spin |
| EL Spectra(nm)          | 472   | 484  | 540   | 540  | 564    | 564  | 580    | 580  | 604  | 600  |
| Current Efficacy (cd/A) | 51.1  | 37.9 | 91.6  | 32.3 | 77.6   | 45.8 | 89.3   | 46.0 | 41.8 | 13.3 |
| Power Efficacy(lm/W)    | 47.2  | 29.8 | 86.9  | 26.6 | 69.0   | 36.0 | 66.0   | 44.5 | 30.9 | 9.1  |
| EQE (%)                 | 23.53 | 15.1 | 25.5  | 8.5  | 24.7   | 13.8 | 34.0   | 16.7 | 27.4 | 7.6  |

VTE: 蒸鍍製程

### 應用 Applications



PMOLED



AMOLED



OLED  
Lighting  
Panel

### 可提供的服務 Service Items

- OLED 磷光發光材料 OLED Phosphorescent emitting material
- OLED 封裝材料 OLED encapsulation material
- OLED 取光材料 OLED light extraction material
- OLED 各膜層材料驗證 Verification Platform for OLED materials

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