

Spin-coating, Ultraviolet Curable OLED Fluid Product Data Sheet

Version 1.0

Organic light emitting diode (OLED) emissive layer that can be deposited by spin-coating methodology. It can be spin coated onto indium tin oxide (ITO), or onto or poly(3,4-ethylenedioxythiophene) poly(styrenesulfonate) (PEDOT:PSS).

Benefits Of Spin-Coating Fluid

1. Low cost
2. Film thickness as low as 10nm
3. Works with OLED Development Kit



How Spin Coated OLEDs Work

This solution is the active portion for use in a multi-layer organic electronic device, wherein the active portion is sandwiched between the anode and cathode layers. The light emitting crystalline material in solution results in significantly improved uniformity of light dispersion from the device. The crystalline structure is within a volatile solvent carrier. The carrier very quickly evaporates during the spin-coating process, leaving a uniform film on the substrate.

Spin coating is a means of depositing a thin film, on a flat substrate, that is uniform across its surface. The substrate is spun at high speed in a horizontal plane. The fluid is deposited whilst the substrate is spinning and is spread across the substrate by centrifugal force.

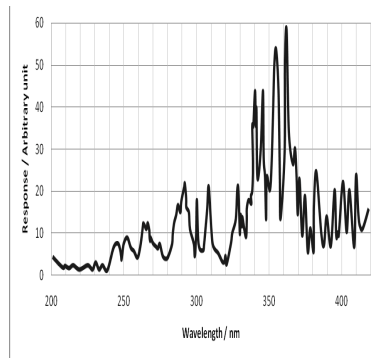
The thickness of the film on the substrate depends on a number of parameters:

1. Rotational speed of spin-coater
2. Spin time
3. Fluid's volatility
4. Fluid's viscosity
5. Surface wetting on substrate
6. Fume extraction
7. Temperature

How Ultraviolet Curing Works

Ultraviolet curable fluids contain polymer molecules that link together when exposed to ultraviolet light of a wavelength that the polymer will absorb the energy of. The process is called cross-polymerization.

Ultraviolet light is be bandwidth 200 - 400nm of the electromagnetic spectrum. It is at the blue end of the visible spectrum, 400 - 700nm. UV light is split into three groups, UV-A (200 - 280nm), UV-B (281 - 315nm) and UV-C (316 - 400nm). UV light can be from several sources. All are found to cure Polymertronics' UV curable encapsulation fluid:



Mercury-Iron UV Arc Lamp
Spectral Emissions

UV curing is faster if conducted in an inert environment such as nitrogen gas. Excluding oxygen speeds the reaction for the reason that where there is oxygen, then cross-linking process is inhibited.



Polymertronics is the one-stop-shop for OLEDs

For proof-of-principle OLED technology and advanced, intelligent electronics, Polymertronics provides everything that you will need:

1. OLED Science Kits for making proof-of-principle OLEDs
2. OLED fluids for spin coating
3. Inkjet printable OLED fluids
4. Ultraviolet curable encapsulation fluids
5. Free OLED electronic driver schematics
6. Spin-coaters
7. Ultraviolet curers
8. Ultraviolet curing expertise for plastic electronics
9. Prototype product development

OLED proof-of-principle suppliers and expertise:

www.polymertronics.com

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