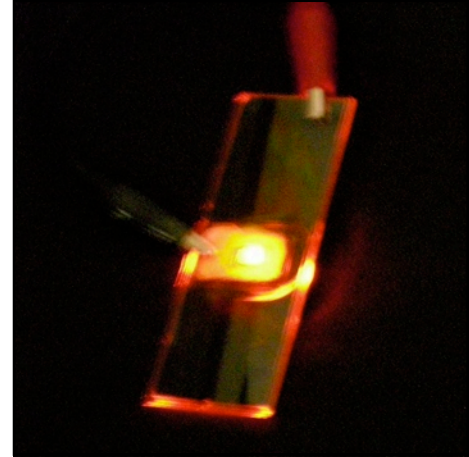


## Inkjet OLED Science Kit Product Data Sheet

Version 1.0

Inkjet organic light emitting diodes (OLEDs) are just one example of the next generation of electronics that comes under the heading of Printed Electronics.

This inkjet OLED science kit enables businesses and educators to manufacture working proof-of-principle inkjet OLEDs. Users can experiment with OLED chemistry, physical structures and control electronics.



### Benefits Of Inkjet OLED Science Kit

1. Make working proof-of-principle OLED devices
2. Does not require an ultra-clean environment
3. Alter OLED inkjet emissive layer chemistry
4. Inkjet graphics with UV-inkjet OLED emissive layer
5. Experiment with OLED device structure
6. Demonstrate properties of OLED's individual layers
7. Evaluate control electronics
8. Equivalent colour LED for OLED/LED comparison
9. Technical support to get kit working and to develop applications

### How The Inkjet OLED Science Kit Works

The OLED in this kit is inkjet printable. The OLED is a four-layer device: anode, inkjet printable organic conductive layer inkjet printable organic emissive layer, cathode. These layers are sandwiched between a glass substrate and an ultraviolet curable encapsulation layer to keep oxygen and water vapour of the device and to protect it from physical damage.

The anode is indium tin oxide (ITO), that has been pre-deposited onto a glass substrate. The conductive layer can be inkjet printed, or spin-coated\* onto the ITO layer. The emissive layer is inkjet printed on to the conductive layer. On top of the emissive layer, the cathode is deposited.

Once made, the OLED device should work instantly. The better the manufacturing quality control is (cleanliness), the better the device will be and the longer it will last. The operational lifetime can be expected to last 100 hours and the storage lifetime can be six months, or more.

\* *Polymertronics retails spin-coaters for the substrates that are supplied in the kits*

### Inkjet OLED Science Kit Contents

Part	Description
OLED emissive layer fluid	Orange colour light emissive OLED fluid
OLED thinner fluid	Fluid to adjust the materials thickness
2 x ITO substrate	Pre-coated indium tin oxide on 25 x 75 mm glass substrate
Organic conductive layer fluid	Hole transport layer fluid
Eutectic alloy	Low work function eutectic metal alloy for the cathode
plastic film Insulating layer	Layer to give OLED a desired shape
Encapsulation fluid	Fast curing encapsulation fluid
Gloves	To be worn when manufacturing devices
Pipettes	Used to draw the OLED fluids onto the substrate
OLED electronic driver	Proprietary OLED driver
Instruction manual	Explanation and instruction manual for OLED manufacture

### Possible Investigations Using The Inkjet OLED Science Kit

1. Add different amount of OLED thinner fluid to observe the effect of OLED thicknesses for light intensity, applied voltage and reliability Make different sized OLEDs
2. Measure the power per unit are of OLED
3. Compare OLED versus LED technologies:
  - A. Power
  - B. Emissive bandwidth
  - C. Light intensity
  - D. Viewing angle



## **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](http://www.polymertronics.com)

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