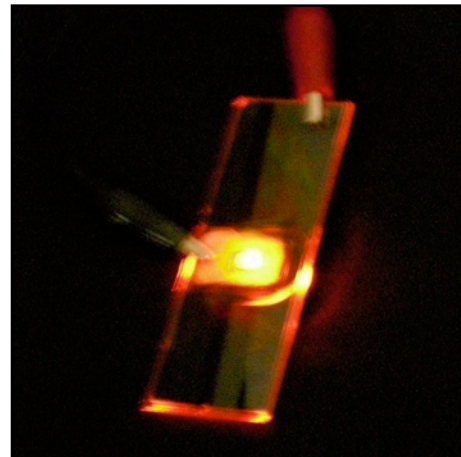


## Red Diamond™ 620i Inkjet OLED Science Kit Product Data Sheet

Version 2

Inkjet organic light emitting diodes (OLEDs) are 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. Inkjet graphics with UV-inkjet OLED emissive layer
4. Experiment with OLED device structure
5. Demonstrate properties of OLED's individual layers
6. Evaluate control electronics
7. Technical support to get kit working and to develop applications

### How The Inkjet OLED Science Kit Works

The OLED in this kit is a four layer device: anode, hole transport layer (HTL), Red Diamond™ organic emissive layer and cathode. These layers are sandwiched between a glass substrate and an encapsulation layer.

The anode is indium tin oxide (ITO), which has been pre-deposited onto a glass substrate. The HTL and emissive layers are inkjet printed onto the ITO. One layer atop of the other. On top of the emissive layer, the cathode is deposited. There are few choices available for the cathode, since it must be a material with a low work-function. A suitable eutectic alloy is provided.

Once made, the OLED device will work instantly. The better the manufacturing quality control is (cleanliness), the better the device will be and the longer it will last.

## Inkjet OLED Science Kit Contents

Part	Description
OLED emissive layer fluid	Orange colour light emissive inkjet OLED fluid
PEDOT:PSS fluid	Dark-blue fluid for OLED hole transport inkjet OLED fluid
OLED placebo fluid	Placebo, non-emissive inkjet OLED fluid
2 x ITO substrate	Pre-coated indium tin oxide on 25 x 25 mm glass substrate
Cathode liquid metal	Low work- function metal alloy for the cathode
2 x Plastic film Insulating layer	Layer to give OLED a 2mm diameter circular shape
2 x Encapsulation set	Five-layered set for cathode alloy and encapsulating OLED
Gloves	To be worn when manufacturing devices (not for clean-room use)
Pipettes	Used to draw the OLED fluids onto the substrate
OLED electronic driver	Advanced OLED driver
Instructions - online PDF	Explanation and instruction manual for OLED manufacture

## Possible Investigations Using The Inkjet OLED Science Kit

1. Make different sized OLEDs
2. Measure the power per unit area of OLED
3. Compare OLED versus LED technologies:
  - A. Power
  - B. Emissive bandwidth
  - C. Light intensity
  - D. Viewing angle

## Polymertronics' Expertise

Polymertronics' products are designed to be out-of-the-box and simple to use. The product range is for businesses and educators who want to understand OLED technology and to develop products for market:

1. Flexible, rigid and inkjet printable OLED Science Kits for experimenting with OLEDs
2. Ultraviolet curing expertise and equipment for printable electronics
3. Electronic drivers for optimizing OLED performance
4. Solid state lighting development products and expertise
5. Full product development capability for applications
6. *Center-Point* for finding resources and answers to queries

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Note<sub>1</sub> : Polymertronics reserves the right to amend this product's specification and/or look of the product without updating this data sheet.

Note<sub>2</sub> : Polymertronics is a subsidiary of E<sup>2</sup>M Technology Limited, United Kingdom.