Technical Datasheet

Durable UV80

UV Resin

Durable UV80

Tensile Modulus (Low – High)

Impact Strength (Low – High)

Compatible Printers
UV LCD & DLP 3D Printers

Liquid Crystal **OPUS**

Colour
Black

Available
500g & 1kg bottles

Clips

Photocentric's Durable range is the most versatile material of the Photocentric functional materials. Durable UV80 is similar to ABS in its ability to resist impact, compress, bend and stress fatigue without breaking or deforming. Photocentric Durable UV80 works with a variety of UV LCD and DLP 3D printers, as well as the Photocentric Liquid Crystal Dental and Opus printers.

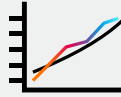## Optimised for:

- Jigs and fixtures
- Cover-plates
- End-use parts
- Fastenings
- Enclosures
- Tools and enclosures

Photocentric

Unique features:

Tough, durable, and long lasting

Simulating the strength and stiffness of ABS

High definition

High tear resistant

Durable UV80 Properties

Tensile Properites	Post-cured	Method
Tensile Modulus *	1940 MPa	ASTM D638
Ultimate Tensile Strength *	46 MPa	ASTM D638
Elongation at break *	13%	ASTM D638
Flexural Properties		
Flexural Strength *	28 MPa	ASTM D790
Flexural Modulus *	760 MPa	ASTM D790
Impact Properties		
Impact Strength Notched Izod *	8.1 kJ/m2	ISO 180
General Properties		
Shore Hardness *	84 Shore D	ASTM D2240
Heat Deflection Temperature*	65°C	
Viscosity	400 cPs	At 25°C Brookfield spindle 3
Density	1.10 g/cm3	
Storage	10<T>50°C	

We are constantly reviewing and improving our range of high-performance materials.
For the very latest information, please visit the Photocentric website

Printer and Resin Profilling

Photocentric UV Printers

To print with Photocentric UV printers, choose 'Durable UV80' and the desired layer thickness when preparing your print file in Photocentric Studio.

3rd Party UV Printers

- Photocentric UV high-performance resins have been formulated to be compatible with a wide range of 3rd Party Printers. This list is continually updated, for the most up-to-date information, please visit our UV Resin Compatibility Page. All resins are functional at a wavelength of 385-405 nm.

- Please see below instruction on how to calculate appropriate exposure time with regards to your 3rd party UV printer and purchased resin

Layer Exposure Guidelines

This guide will assist you in establishing a layer exposure time for a desired resin and layer thickness based on the characteristics of Photocentric's UV Resin range and your UV 3D printer.

Each resin requires a specific energy to cure a certain layer thickness. 'Energy' is defined by multiplying 'light output intensity' of your printer and a 'given time of exposure'. The equation below simply explains the matter.

Energy [mJ/cm²]= Light Output Intensity [mW/cm²] x Exposure Time [s]

Your UV 3D printer manufacturer will provide you with light output intensity value.

Layer Thickness (μm)	25	50	100
A UV 3D printer with 5mW/cm2 light output intensity	2 sec	3 sec	4.5 sec
Ec(mJ/cm2)	6.5		
Dp(mm)	0.025		

Bear in mind the exposure time vs energy is not a linear trend, and this data is intended strictly as a guideline. Settings may need to be further optimised to suit each printer.

Pre-Print Instructions

1. Heat the resin to 30°C in the bottle.
2. Shake the resin bottle for 2 minutes before pouring into the resin vat.
3. Stir resin in vat with vat cleaning tool for pigment drop out etc. before and between prints if the print is immediate and vat is not being emptied.

Post-Print Instructions

To reach the full mechanical properties of the material, parts printed using Durable UV80 resin will need to be post-processed.

1. Remove the print platform from the printer and place into the wash unit.
2. Follow resin cleaner/solvent TDS for relevant wash cycles. You can use 'Photocentric Wash 15' or 'Photocentric Air Wash L'.
3. Rinse parts with water to remove excess resin and solvent.
4. Where possible, use compressed air to dry the parts, if not, leave them to dry naturally.
5. The parts printed in Durable UV80 can be cured in any UV post-curing unit. You can use 'Photocentric Cure M+' for 4 hours for small parts or 6+ hours for larger parts at 60°C.
6. Remove the platform from the cure unit and place on to a suitable flat surface.
7. To remove parts from the platform, use a scraper or suitable cutters and take care to not damage the part/(s).