

## Ultracur3D® FLD5006



Bike handles

### Compatible Printers



Liquid Crystal  
**MAGNA**

### Colours

● Translucent Black

Available in 5kg bottles

### Introduction

Creating complex geometries like lattices, with 'Flexible' materials, allows the user to maximise the benefits of 3D printing, making a part with dynamic properties with only one step manufacturing instead of several.

Photocentric in joint collaboration with BASF is introducing a new industrial daylight flexible resin with high rebound - 'Ultracur3D® FLD5006' – an optimised solution for applications which require a combination of high energy return, high elongation and tear strength.

Printing of flexible materials has never been easier, owing to its low viscosity, good green strength, excellent definition and fast post curing.

### Best Used for:

- Footwear (e.g. Midsoles)
- Cushioning (e.g. bike saddle)
- Seals, gaskets
- Grips, handles (e.g. bike handles)
- Cable protection
- Caster wheels

### Unique Features:

- High rebound and energy return
- Highly elastic with significant elongation at break (>140%)
- 73A Shore hardness
- High tear resistance
- High definition
- Low viscosity and easy to process
- Fast post curing
- Properties similar to TPU

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Revision 2  
14/12/2022



## Properties

Tensile Properties	Green	Post-Cured	Method
Tensile Modulus	5.34 MPa	52.6 MPa	ASTM D412
Tensile Strength (Break)	1.2 MPa	19.1 MPa	ASTM D412
Elongation at Break	48%	144%	ASTM D412

Mechanical Properties			
Tear Strength	-	35.4 kN/m	ASTM D624
Rebound Resilience	-	28%	ASTM D7121

General Properties			
Shore Hardness	-	73 Shore A	ASTM D2240
Water absorption (%)* after 24 hrs	-	2.26%	ASTM D570
Water absorption (%)* after 72 hrs	-	3.48%	ASTM D570
Water absorption (%)* after 7 days	-	6.83%	ASTM D570

Liquid Properties	Value	Method
Viscosity	470 cPs	At 25°C Brookfield spindle 3
Density	1.07 g/cm <sup>3</sup>	-
Storage	10<T>50°C	-

\* Post cured for 4 hours at 60°C with Photocentric Cure L2

## Design & Print Orientation Consideration Parameters

Property	Parameters
Minimum feature size (pins)	0.4mm
Minimum hole diameter	0.6mm
Minimum slot thickness	0.4mm
Minimum wall thickness	0.8mm
Overhangs	Successful for overhangs $\leq 60^\circ$
Scaling factor	N/A
Lattice Parameters	Photocentric applications team designed the following different lattices test piece as a recommendation for user's first print with any flexible resin.

By doing so, user will understand resin properties in relation to design parameters and assist them to design their next parts accordingly.

To download the file please [click here](#).



Recommended orientations to print

45° angle or vertical as possible.

## Pre-Print Instructions

- To print with Photocentric Liquid Crystal Magna, choose 'BASF Ultracur3D FLD5006' at desired layer thickness when preparing your print file in Photocentric Studio.
- Heat the resin to 30°C in the bottle.
- Shake the resin bottle for 2 minutes before pouring into the resin vat. (Shaking the resin before it's poured into the vat ensures pigments and other constituents of the resin are evenly dispersed).
- To keep the resin in good functional state and minimal vat polymerisation, use only required amount for each print. After each print filter the resin back into the bottle or top up the vat with fresh resin.

## Post-Print Instructions

1. Parts can be washed in 'Photocentric Air Wash L' for no longer than 10minutes using 'Photocentric Resin Cleaner' or 'Photocentric Resin Cleaner 30'.
2. Make sure you do not exceed the recommended wash cycles as it might have an adverse effect on the mechanical properties.
3. Once washed, rinse with warm water for 1-2 minutes.
4. Gently dry with compressed air to remove any remaining water. Or alternatively, leave to air-dry.
5. To reach the ultimate mechanical properties: Place the platform into the Photocentric Cure L2 for a minimum of 4 hours at 60°C. Depending to the size of parts, it may require longer post curing time.
6. Remove the platform from the Cure L2 and remove the part(s) from the platform with using a sharp scraper. It is easier to remove parts when they are still warm.