Technical Datasheet

Rigid DL240 Plant-Based

Daylight Resin

Photocentric

Rigid DL240 Plant-Based

Accuracy (Low – High)

Shore Hardness (Low – High)

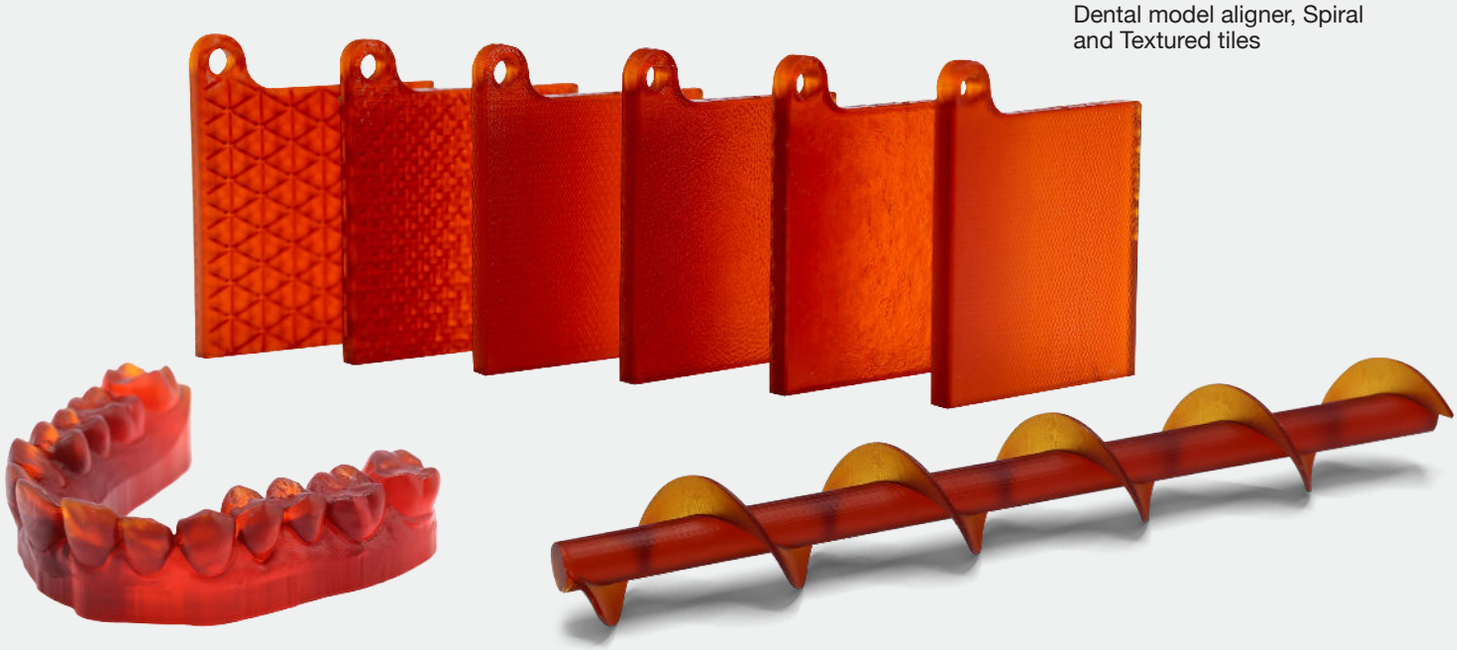
Compatible Printers

Liquid Crystal MAGNA

Colour

Dark Amber

Available in
5kg bottle



Dental model aligner, Spiral and Textured tiles

Rigid DL240 Plant-Based is a high-performance rigid 3D printing resin which consists of 50% bio-based raw materials, offering a substantial reduction on net CO_2 emission compared to conventional resins. It is remarkably easy to handle and process, along with exhibiting outstanding properties.

Rigid DL240 Plant-Based has high accuracy, with over 98% of scanned data within +/- 100µm for dental models printed horizontally and over 83% of scanned data within +/- 100µm for dental models printed vertically, increasing output for overnight production. It enables quick design iterations by offering 250 and 350µm layer thickness print profiles.

Optimised for:

- Fast & Accurate Prototyping
- Dental Models for Aligner manufacturing

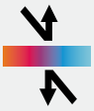
Revision 2
16/03/2023

Unique features:

High accuracy

Exceptional surface finish and smooth feel

Quick design iterations



Rigid

50% of components from plant-based materials

Dry to touch

Fast post curing

Rigid DL240 Plant-Based Properties

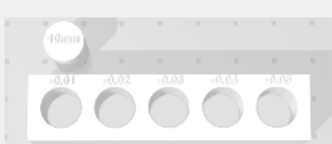
Tensile Properites	Green	Post-Cured	Method
Tensile Modulus	1210 MPa	2440 MPa	ASTM D638
Tensile Strength (Break)	27 MPa	56.6 MPa	ASTM D638
Tensile Strength (Yield)	24.3 MPa	64.5 MPa	ASTM D638
Elongation at Break	19.2%	6.1%	ASTM D638
Flexural Properties			
Flexural Strength	-	108 MPa	ASTM D790
Flexural Modulus	-	2656 MPa	ASTM D790
Impact Properties			
Impact Strength Notched Izod	-	12.2 J/m	ASTM D256
Impact Strength Notched Izod	-	2.2 kJ/m2	ISO 180
General Properties			
Shore Hardness	-	88 Shore D	ASTM D2240
HDT (@ 0.455 MPa)	-	78.4°C	ASTM D648
HDT (@ 1.82 MPa)		62.6°C	ASTM D648
Water absorption (%)* after 24 hrs	-	0.470%	ASTM D570
Water absorption (%)* after 72 hrs	-	0.625%	ASTM D570
Water absorption (%)* after 7 days	-	0.933%	ASTM D570

Liquid Properties	Value	Method
Viscosity	580 cPs	At 25°C Brookfield spindle 3
Density	1.10 g/cm^3	-
Storage	10<T>50°C	-

* Post cured for 2 hours at 60°C with Photocentric Cure L2

Design & Print Orientation Consideration Parameters

There are some design guidelines for printing parts with Liquid Crystal Magna

Properties	Parameters
Minimum feature size (pins)	0.5mm
Minimum hole diameter	0.8mm
Minimum slot thickness	0.4mm
Minimum wall thickness	0.5mm
Overhangs	Successful for overhangs ≤15°
Round Dim Fit	Parts fit with no resistance at 0.01mm offset Click to view sample 
Square Dim Fit	Parts fit perfectly with no resistance at 0.01mm offset Click to view sample 
Minimum wall thickness unsupported	0.5mm (add 0.25mm thicknes for every 10mm)

Pre-Print Instructions

1. To print with Photocentric Liquid Crystal Magna, choose ‘Rigid DL240Bio’ at desired layer thickness when preparing your print file in Photocentric Studio.
2. Heat the resin to 30°C in the bottle.
3. Shake the resin bottle for 2 minutes before pouring into the resin vat.

Post-Print Instructions

1. Parts can be washed in 15 minutes using Photocentric Resin Cleaner or alternatively, in 10 minutes using Photocentric Resin Cleaner 30.
2. Make sure you do not exceed the recommended wash cycles as it might have adverse effect on the mechanical properties.
3. Once washed, rinse with warm water for 1-2 minutes
4. 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 2 hours at 60°C. for medium to large parts post curing might take between 3 to 4 hours.
    - If only ‘dry to touch’ finish is required, for example for dental models, 30 minutes post curing should be adequate.
6. Remove the platform from the Cure L2 and immediately leave it for 2 minutes under running cold water below 14°C for thermal shocking. Parts can be removed from the platform with minimal effort.

Photocentric

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