LOCTITE® 3D 3870

Laboratory Data Sheet

Confidential

July 2018

PRODUCT DESCRIPTION

Loctite® 3D 3870 is a light curing acrylic resin that may be used for prototyping *via* stereolithography. Loctite® 3D 3870 cures with very short exposure to monochromatic light sources such as LED or Laser. Printed articles made from Loctite® 3D 3870 exhibit good print resolution, high impact resistance and durability. Loctite® 3D 3870 is a low viscosity liquid that is printable at room temperature across various laser SLA and DLP Platforms.

Technology	Stereolithography Resin
Appearance	Black opaque liquid
Chemistry Type	Acrylic
Odor	Mild
Cure	Ultraviolet / Visible Light
Viscosity	500-700 mPas at 25°C
Flow Characteristic	Self-leveling, Newtonian fluid
Application	Prototyping
Specific Benefits	• Good print resolution • Short exposure times • High impact

TYPICAL PROPERTIES OF UNCURED MATERIAL

Appearance: Black opaque liquid
Density: 1.10
Viscosity mPa.s 500-700
Haake Cone & Plate
RV1, C60 1 TiL, 200 s^{-1} @ 25ºC

TYPICAL PRINTER SETTINGS

The following table represents tested settings optimised for the Loctite® PR10 Printer. These settings are applicable to small test prints. Print parameters may need to be adjusted for large prints or the addition of support structures and the orientation of objects.

Print Layer	Initial Build Layer (2)	Default Build Layers
Layer Thickness (mm)	0.100	0.050
Rehab Time	2	2
Cure Time (s)	45	4.5
Retraction Height	7	7
Retraction Speed up	50	50
Time at Top	1	1
Retraction Speed Down	200	200
Light Intensity (%)	100	100

TYPICAL MATERIAL PROPERTIES OF PRINTED PARTS*

Test	Method	Results
IZOD Impact	ASTM D-256	90 J/m
Tensile Strength	ASTM D638	19 MPa
Elongation @ Break	ASTM D638	60%
Modulus	ASTM D638	1100 MPa
Linear Shrinkage	ASTM D792	1.7%

IZOD Impact specimen printed on the xy axis, unsupported laid flat to the printer head.
*After printing, the end user may expose the specimens to additional UV/VIS light (e.g. 2,5 mW/cm^2 of 405nm LED) and 60°C for 15 min.

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For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

Directions for use

1 Wear gloves and protective glasses to prevent skin contact and for eye protection.
2 ****Shake well before use** and mix resin well before each print.
3 Do not leave resin in tray for extended periods when printer is not in use.
4 This material is highly photo sensitive protect from natural and artificial light sources outside of the protected printer environments.
5 Printer to printer variation requires adjustment of settings. Use the dosage as a guide establishing the correct printer for the specific printer that the material will be printed on.
6 Take care to keep printer parts clean and ensure trays and print heads are in good condition.
7 Calibrate printers as per user manual before printing.

Storage

Product should be stored in a dry location in unopened containers at 8-21 °C unless otherwise labelled. Storage above 28 °C is not recommended as the viscosity of the product can change at such temperatures. To prevent contamination of unused product, do not return any material to its original container.

Note

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