

LOCTITE®

IND147™

PhotoPlastic

HDT230

High Heat

LOCTITE®
5110 Port Chicago Hwy
Concord CA 94520
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Preliminary v2.5



IND147™ HDT230 High Heat

Description

LOCTITE® IND147™ Engineering products are high performance fluid is developed to be highly consistent with extraordinary attributes. LOCTITE® IND147™ is a high temperature resistant photopolymer, and can be printed with very high resolution features (50 um). This product can be easily painted, sanded or machined for further finishing. This product should only be

Mechanical Properties	Method	Green	Workflow A	Workflow B
Tensile Stress at Break	ASTM D638	30.7 ± 1.6 MPa [3]	75 ± 2.0 MPa [5]	84 ± 4.7 MPa [6]
Young's Modulus	ASTM D638	1150 ± 137 MPa [3]	3192 ± 35 MPa [5]	3285 ± 131 MPa [6]
Elongation at Failure	ASTM D638	5.9 ± 1.7 % [3]	3.0 ± 0.1 % [5]	3.2 ± 0.3 % [6]
Flexural Stress at Yield	ASTM D790	68 ± 3 MPa [12]	130 ± 11 MPa [1]	126 ± 11 MPa [2]
Flexural Modulus	ASTM D790	2053 ± 189 MPa [12]	3835 ± 131 MPa [1]	3926 ± 51 MPa [2]
Flexural Strain at Break	ASTM D790	7.6 ± 2.7 % [12]	3.1 ± 0.4 % [1]	3.2 ± 0.3 % [2]
Thermal Properties				
HDT @ 0.455 MPa DMA	Internal	56.1°C [9]	140°C [9]	237°C [10]
HDT @ 1.82 MPa DMA	Internal		111°C [25]	166.7°C [4]
HDT @ 0.455 MPa VICAT	ASTM D648	[20]	[19]	[21]
HDT @ 1.82 MPa VICAT	ASTM D648		[23]	[22]
Coefficient of Thermal Expansion (25-200°C)	ASTM E831		114 µm/m-°C [17]	106 µm/m-°C [18]
Other Properties				
Durometer (Shore D, 0 Sec)	ASTM D2240		94D [8]	94.5D [7]
IZOD Impact Strength	ASTM D256		14.6 J/m [13]	14.5 J/m [14]
Water Absorption (24 Hr)	ASTM D570		0.25% [16]	
Solid Density	ASTM D792	[24]	[24]	
Shrinkage by Density	ASTM D792	[24]	[24]	
Liquid Properties				
Viscosity @ 25°C (77°F)	ASTM D7867	2105 ± 200 cP [11]		
Liquid Density	ASTM D1475	1.15 g/mL [15]		

"All specimen are printed unless otherwise noted. All specimen were conditioned in ambient lab conditions at 19-23C / 40-60% RH for at least 24 hours." ASTM Methods: D638 Type IV, 5mm/min, D790-B, 2mm/min, D256 Notched IZOD (Machine Notched), 6 mm x 12 mm, D648, D2240, Type "D" (0, 3 seconds), D570 0.125" x 2" Disc 24hr@ 25°C, D7867@ 25°C (77°F), D1475

1. TaskID Reference: FOR5686
 2. TaskID Reference: FOR6308
 3. TaskID Reference: FOR8167
 4. TaskID Reference: FOR6307
 5. TaskID Reference: FOR5687
 6. TaskID Reference: FOR5769
 7. TaskID Reference: FOR8159
 8. TaskID Reference: FOR8160

9. TaskID Reference: FOR5454
 10. TaskID Reference: FOR5646
 11. TaskID Reference: FOR7903
 12. TaskID Reference: FOR4007
 13. TaskID Reference: FOR8157
 14. TaskID Reference: FOR8158
 15. TaskID Reference: FOR8163
 16. TaskID Reference: FOR12288

17. TaskID Reference: FOR8169
 18. TaskID Reference: FOR8168
 19. TaskID Reference: FOR19474
 20. TaskID Reference: FOR19475
 21. TaskID Reference: FOR19476
 22. TaskID Reference: FOR19477
 23. TaskID Reference: FOR19478
 24. TaskID Reference: FOR19479

25. TaskID Reference: FOR6491
 26. TaskID Reference: FOR20374
 27.



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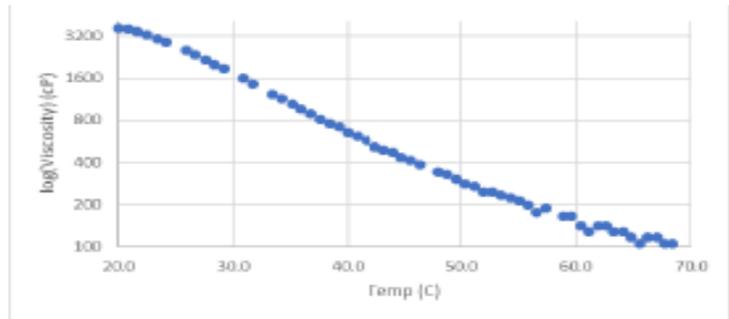
Machine Settings

LOCTITE® IND147™ is formulated to print optimally on any DLP machine. It is recommended to print with 405 nm wavelength projectors with irradiance between 4-8 mW/cm². Layer time is given below at 5mW/cm²:

Layer Thickness:	25um	50um	100um
Base Cure Time:	25s	25s	25s
Model Layer Cure Time:	3s	4s	5s

[385nm, 5mW/cm ²] Ec (mJ/cm ²):	9.50 ^[26]
[385nm, 5mW/cm ²] Dp (mm):	0.119 ^[26]

Viscosity Profile



Post Processing

LOCTITE® IND147™ requires post processing to achieve specified properties. Prior to post curing, support structures should be removed from the printed part, and the part should be washed in a compatible cleaner. Henkel recommends either IPA or LOCTITE® Cleaner C with a 2 to 5 minute wash in an ultrasonic bath. Wait a minimum of 60minutes before starting post cure. Exact times and methods can be found by contacting us at www.loctiteAM.com.

Post Curing

LOCTITE® IND147™ requires post curing to achieve specified properties. A wide array of post cure equipment can be used to cure appropriately. Detailed information can be found by contacting us at www.loctiteAM.com.

Additional Development Options

Colors: LOCTITE® IND147™ formula can be made in additional pigment colors.

Formula Modification for LOCTITE® IND147™ are possible.

Limitations

Vat Printer: LOCTITE® IND147™ has not been tested.

LCD printers: LOCTITE® IND147™ not possible.



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Note

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