

Produkt: IND147

Hersteller: HENKEL KGAA

Warengruppe: 3DP

Artikelgruppe: 3DP RESINS

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## LOCTITE IND147 HDT230 HIGH HEAT BLACK

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# **LOCTITE®**

## **IND147™**

### **HDT230**

### **High Heat Black**

# IND147™ HDT230 High Heat

## Description

LOCTITE® 3D IND147™ is a high temperature resistant resin with HDT 230°C for tooling and molding applications. The material showcases good dimensional stability, good surface finish and sufficient toughness to withstand mechanical stresses from molding processes. This material is resistant to temperature stress and is ideal for tooling applications.

Available Colors: Black, Natural

Mechanical Properties	Method	Green	Post cured with Uvitron Intelliray 600 5min /per side
Tensile Stress at Break	ASTM D638	30.7 ± 1.6 MPa <sup>[3]</sup>	75 ± 2.0 MPa <sup>[5]</sup>
Young's Modulus	ASTM D638	1150 ± 137 MPa <sup>[3]</sup>	3192 ± 35 MPa <sup>[5]</sup>
Elongation at Failure	ASTM D638	5.9 ± 1.7 % <sup>[3]</sup>	3.0 ± 0.1 % <sup>[5]</sup>
Flexural Stress at Yield	ASTM D790	68 ± 3 MPa <sup>[12]</sup>	128± 17 MPa <sup>[1]</sup>
Flexural Modulus	ASTM D790	2053 ± 189 MPa <sup>[12]</sup>	3168± 33 MPa <sup>[1]</sup>
Flexural Strain at Break	ASTM D790	7.6 ± 2.7 % <sup>[12]</sup>	4.52± 0.8 % <sup>[1]</sup>
<b>Thermal Properties</b>			
HDT @ 0.455 MPa VICAT	ASTM D648	<sup>[20]</sup>	238°C <sup>[19]</sup>
HDT @ 1.82 MPa VICAT	ASTM D648		107°C <sup>[23]</sup>
Coefficient of Thermal Expansion (25-200°C)	ASTM E831		114 µm/m-°C <sup>[17]</sup>
<b>Other Properties</b>			
Durometer (Shore D, 0 Sec)	ASTM D2240		94D <sup>[8]</sup>
IZOD Impact Strength	ASTM D256		14.6 J/m <sup>[13]</sup>
Water Absorption (24 Hr)	ASTM D570		0.25% <sup>[16]</sup>
Solid Density	ASTM D792	1.246 g/cm <sup>3</sup> <sup>[24]</sup>	1.262 g/cm <sup>3</sup> <sup>[24]</sup>
Shrinkage by Density	ASTM D792	8.25% <sup>[24]</sup>	9.64% <sup>[24]</sup>
<b>Liquid Properties</b>			
Viscosity @ 25°C (77°F)	ASTM D7867	2105 ± 200 cP <sup>[11]</sup>	
Liquid Density	ASTM D1475	1.15 g/mL <sup>[15]</sup>	

"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: FOR2424542  
 2. TaskID Reference: FOR6308  
 3. TaskID Reference: FOR8167  
 4. TaskID Reference: FOR6307  
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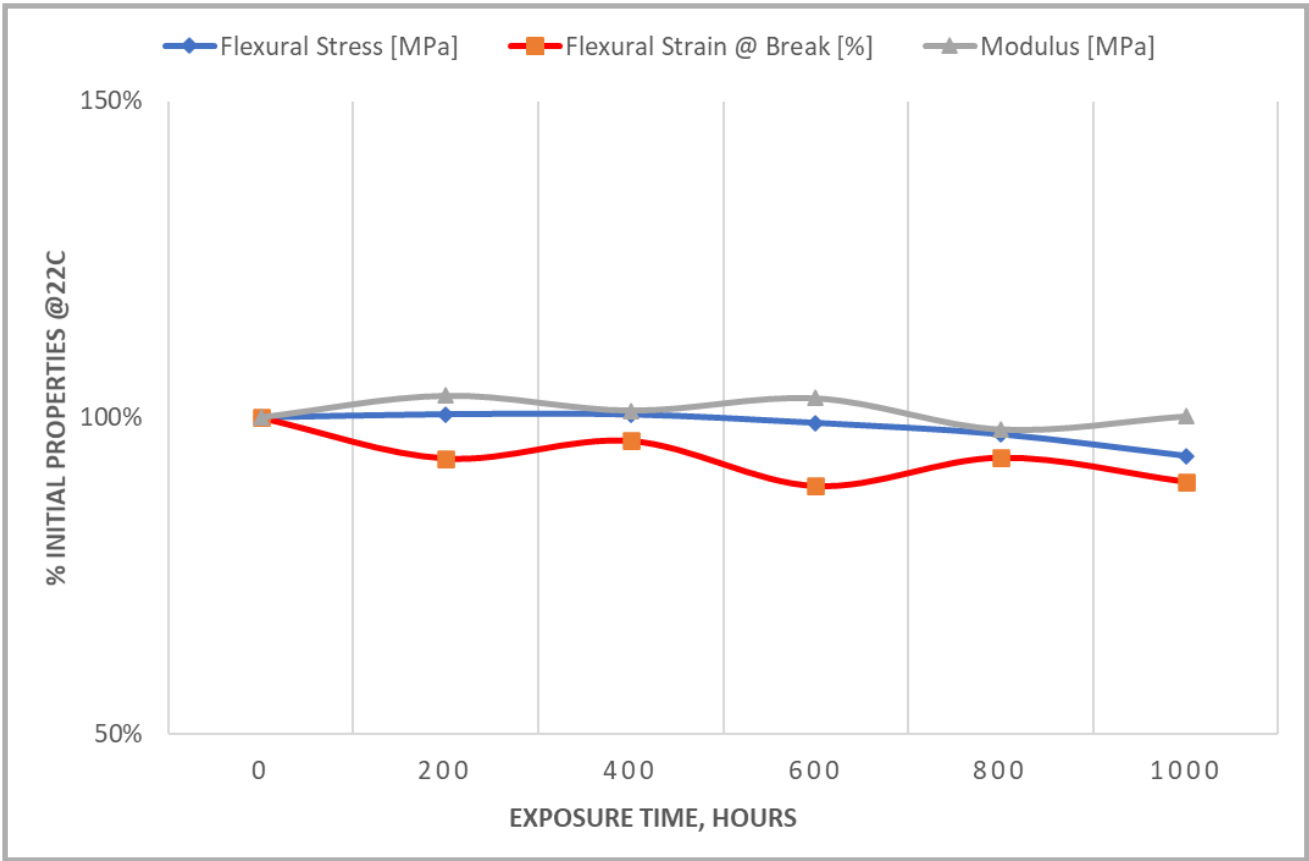


# IND147™ HDT230 High Heat

## Environmental Resistance

### Heat Aging

Aged at 125°C and tested @ 22°C <sup>[27]</sup>



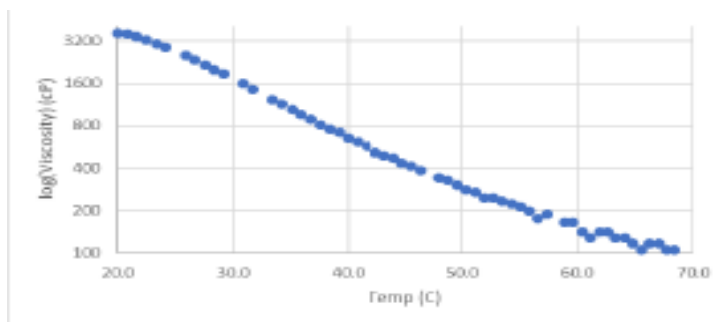
# IND147™ HDT230 High Heat

## Machine Settings

LOCTITE® IND147™ is formulated to print optimally on any DLP machine. It is recommended to print with 385–405 nm wavelength projectors with irradiance between 4-8 mW/cm<sup>2</sup>. Layer time is given below at 5mW/cm<sup>2</sup>, using a 385nm printer:

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

## Viscosity Profile



Recommended printing Temperature range: 20°C to 45°C

## 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 in 2 minute wash intervals. Use compressed air to remove residual solvent from the surface of the material between intervals. Exact times and methods can be found by contacting us at [www.loctiteAM.com](http://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](http://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.



# IND147™ HDT230 High Heat

## Note

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