



R&D Experimental Formulation Disclaimer:

The information and data contained within this Preliminary Technical Datasheet (pTDS) is subject to change. This pTDS is intended to provide an overview range of the properties, performance, and processing parameters identified during product development. The final version of this material is under development pending user experience feedback and internal research and development.

***Preliminary Technical
Datasheet***

R&D EXPERIMENTAL V1

LOCTITE 3D IND380™

HDT200 ESD-Safe

Black

LOCTITE®

Henkel Corporation

loctite3dp@henkel.com

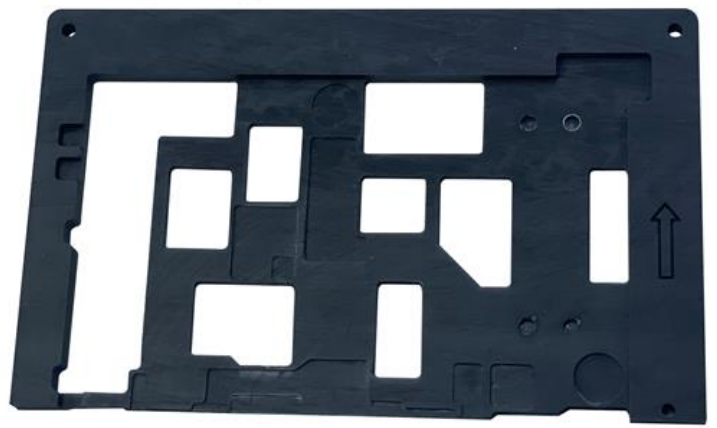


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IND380™

HDT200 ESD-Safe

Black



LOCTITE 3D IND380™

LOCTITE 3D IND380 is a high temperature resistant resin with HDT >200°C, static dissipative properties, and high stiffness

LOCTITE 3D IND380 shows good surface finish and sufficient toughness to withstand mechanical stresses from low load manufacturing processes. Its unique properties make it ideal for applications such as jigs and fixtures for electronic device handling and manufacturing via processes such as flux welding and PCB-A reflow



Benefits:

- Displays static dissipative properties
- High HDT >200 °C
- High accuracy and fine detail printing



Ideal for:

- Tooling at high temperature, low pressure
- Jigs and fixtures for electronic device manufacturing processes



Markets:



Industry



Consumer Goods



Automotive

Tensile Stress at Break (MPa)

50-70

Young's Modulus (MPa)

3100 – 3300

Elongation at Break (%)

2

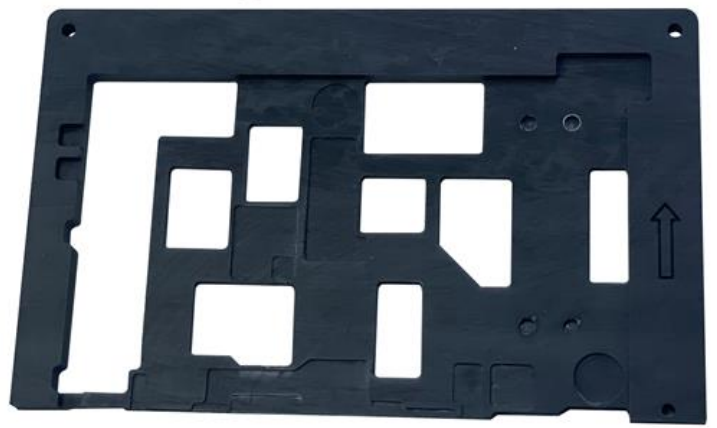
HDT at 0.455 (MPa)

200-230



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PROPERTIES

Mechanical Properties	Measure	Method	Post Processed (Broad Spectrum UV)
Tensile Stress at Break	MPa	ASTM D638	50-70
Young's Modulus	MPa	ASTM D638	3100-3300
Strain at Break	%	ASTM D638	2-3
Flexural Strength	MPa	ASTM D790	100-120
Flexural Modulus	MPa	ASTM D790	3500-3800
Flexural Strain at Break	%	ASTM D790	2.5-3.5
Other Properties			
IZOD Impact Strength (Notched)	J/m	ASTM D256	13-16
HDT at 0.455 MPa	°C	ASTM D648	200-230
HDT at 1.82 MPa	°C	ASTM D648	140-170
Surface Resistivity	Ω	ASTM D257	10 ⁶ - 10 ⁸
Shore Hardness (5s)	D	ASTM D2240	90-95
Water Absorption (24 hr)	%	ASTM D570	<0.5
Solid Density	g/cm ³	ASTM D1475	1.2 - 1.3
Liquid Properties			
Viscosity (25°C, 77°F)	cP	ASTM D7867	5000 – 10000
Liquid Density	g/cm ³	ASTM D1475	1.1 – 1.2

All specimen are printed unless otherwise noted. All specimen were conditioned in ambient lab conditions at 19-23°C / 40-60% RH for at least 24 hours.

ASTM Methods and Parameters:

D638-14 Type IV, 5 mm/min

D790-17 Method B, 1.5 mm/min

D648-18 Method A

D256-10 (18) - Machine Notched, 6 mm x 12 mm, 2.75 J Striker

D570-98 (18) - 0.125" x 2" Disc , 24hr @ 25°C

D2240-15 (21)

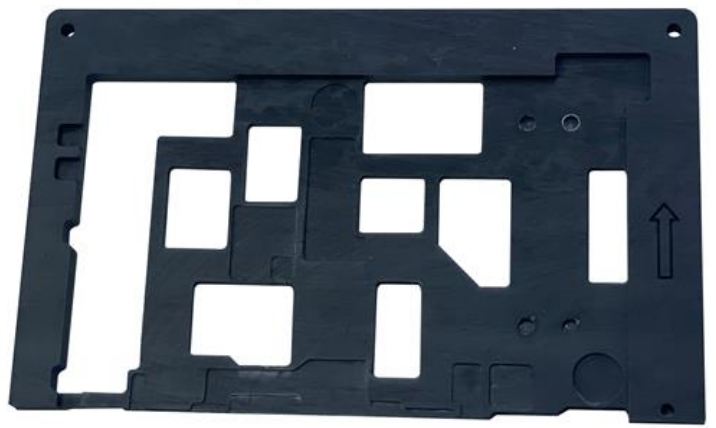
D7867-13 (20)

D1475-13 (20)





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WORKFLOW

Validated workflows need to be followed to achieve properties as provided in the pTDS. Examples of validated workflow steps are listed below. Users should defer to the most current workflow information for best results which can be found at <https://www.loctiteam.com/printer-validation-settings>

PRINTER SETTINGS

LOCTITE 3D IND380 is formulated to print optimally on industrial DLP printers. Read the safety data sheet carefully to get details about health and safety instructions. Shake resin bottle well before use.

Recommended Printer Parameters

Print Temperature (°C):	25 - 60
Printer Wavelengths (nm):	385, 405
Irradiance (mW/cm ²):	3 - 10

Example Print Parameters: 5 mW/cm² at 385 nm, 35°C

Layer Thickness (µm):	100
First layer time (s)	25-35
Burn in region (s):	15-25
Model Layer Cure Time (s):	8-12

POST PROCESSING

LOCTITE 3D IND380 requires post processing to achieve specified properties. Prior to post curing, support structures should be removed from the printed part, and the part should then be washed. Use compressed air to remove residual solvent from the surface of the material between intervals.

Post Process Step	Agent	Method	Duration	Intervals	Additional Info
Cleaning 1	Cleaner T or IPA	Hand Wash or Agitated Bath	2 min	1 or 2	Allow parts to dry between intervals
Dry	n.a.	Compressed air	60 s	1 or 2	Air pressure (50 psi)
Wait before post curing	n.a.	Ambient condition	60 min	1	Room temperature

POST CURING

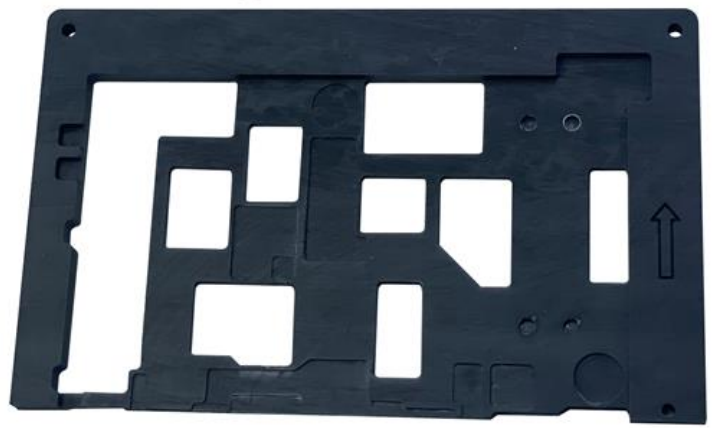
LOCTITE 3D IND380 requires post curing to achieve specified properties. It is recommended that a wide spectrum lamp be used to post cure parts.

UC Curing Unit	UV Source	Intensity	Cure time/ side	Additional Settings (Shelf, Output Energy)
Dymax 5000 EC Flood	Mercury Arc Bulb (broad spectrum)	150 mW/cm ² at 380 nm	10 min	400W, Shelf K



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ADDITIONAL DEVELOPMENT OPTIONS

Colors:

Available: Black

Possible: Pending user feedback and internal R&D

Customization:

Pending user feedback and internal R&D

POTENTIAL LIMITATIONS

Material Stability:

- R&D Experimental v1 is known to display particle agglomeration and separation. The commercial version of this material will display improved stability and product consistency.
- For best results it is required to agitate the material well prior to use. It is required to re-agitate any material in a printer every 24 hours to mitigate the effects of agglomeration.

Hardware Compatibility:

- Not intended for vat stereolithography printers or low irradiance LCD printers.
- Print temperatures of 35-45°C are preferred

Processing:

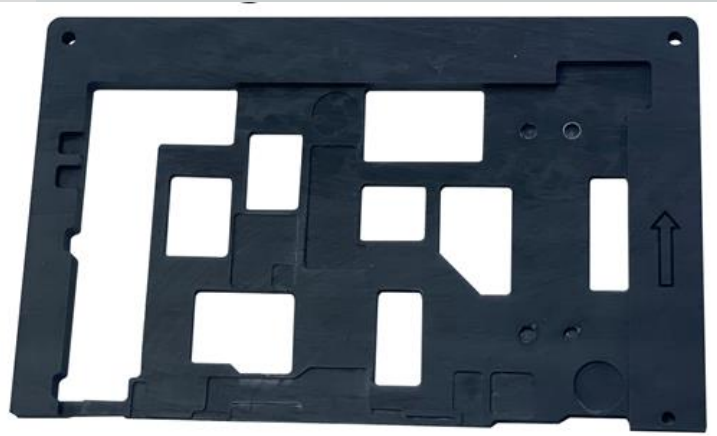
- Do not soak parts in solvent for >2 minute(s) at a time
- Clean and cure parts within 24 hours of print completion

<https://www.loctiteam.com/printer-validation-settings/>



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NOTE

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loctite3dp@henkel.com

