

LOCTITE®

IND405™

PhotoPlastic

HDT50 HE

High Elongation

Black

5110 Port Chicago Hwy
Concord CA 94520

7/10/2020

Preliminary v3.1



IND405™ HDT50 High Elongation Black

Description

LOCTITE® IND405™ is a very strong and durable photopolymer with mechanical attributes similar to polypropylene. LOCTITE® IND405™ displays fantastic elongation, impact strength, and compression strength. Parts manufactured with LOCTITE® IND405™ can be machined, tapped, or polished. This product is recommended to be printed on a DLP machine.

Available Colors: Black, Clear

Mechanical Properties	Method	(Green)	Post Processed
		No post processing	
Tensile Stress at Break	ASTM D638	24 ± 1 MPa ^[21]	45 ± 2 MPa ^[17]
Tensile Stress at Yield	ASTM D638	25 ± 1 MPa ^[21]	44 ± 1 MPa ^[17]
Young's Modulus	ASTM D638	897 ± 20 MPa ^[21]	1434 ± 80 MPa ^[17]
Elongation at Failure	ASTM D638	89 ± 8 % ^[21]	101 ± 10.5 % ^[17]
Maximum Flexural Stress	ASTM D790		50 ± 1 MPa ^[20]
Flexural Modulus	ASTM D790		1181 ± 65 MPa ^[20]
Flexural Strain at Break	ASTM D790		Does not Break ^[20]
Impact Strength—IZOD Notched	ASTM D256		69 ± 2 J/m ^[18]
Impact Strength—IZOD Unnotched	ASTM D256		>1500 J/m ^[18]
Other Properties			
HDT @ 0.455 MPa	ASTM D648		52.8°C ^[22]
Shore Hardness "D" (0s,3s)	ASTM D2240		80,76 ^[14]
Water Absorption	Internal		1% ^[15]
Liquid Density	ASTM D1475		1.046 ^[19]
Solid Density (Green)	ASTM D1475		1.116 ^[19]
Solid Density (Post Processed)	ASTM D1475		1.121 ^[19]
Liquid Properties			
Viscosity @ 25°C (77°F)	ASTM D7867		2410 cP ^[13]

"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, 50mm/min, D790-B, 2mm/min, D256 Notched IZOD (Machine Notched), 6 mm x 12 mm, D648, D2240, Type "D" (0, 3 seconds), D1475, D7867

- 1) TaskID Reference: FOR16318
- 2) TaskID Reference: FOR16273
- 3) TaskID Reference: FOR5556
- 4) TaskID Reference: FOR9594
- 5) TaskID Reference: FOR16316
- 6) TaskID Reference: FOR16321
- 7) TaskID Reference: FOR10162
- 8) TaskID Reference: FOR16266
- 9) TaskID Reference: FOR16274

- 10) TaskID Reference: FOR18476
- 11) TaskID Reference: FOR16322
- 12) TaskID Reference: FOR17633
- 13) TaskID Reference: FOR18202
- 14) TaskID Reference: FOR18207
- 15) TaskID Reference: FOR18206
- 16) TaskID Reference: FOR16757
- 17) TaskID Reference: FOR18201
- 18) TaskID Reference: FOR18611

- 19) TaskID Reference: FOR18208
- 20) TaskID Reference: FOR18531
- 21) TaskID Reference: FOR19614
- 22) TaskID Reference: FOR18828



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Machine Settings

LOCTITE® IND405™ is formulated to print optimally on any DLP machine. It is recommended to print with 385-405 nm wavelength projectors with irradiance between 3-7 mW/cm². Layer time is given below at 5 mW/cm²:

Ec (mJ/cm ²)	6.1
Dp (mm):	0.14

Layer Thickness	25 µm	50 µm	100 µm
First Layer Exposure Duration	15 s	25 s	45 s
Burn In Region Exposure Duration	8 s	15 s	30 s
Model Exposure Duration	3 s	4 s	8 s

Post Processing

LOCTITE® IND405™ 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. LOCTITE® recommends either IPA or Cleaner C in 2 minute interval wash cycles. 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.

Post Curing

LOCTITE® IND405™ requires post curing to achieve specified properties. A wide array of post cure devices can be used to cure appropriately. See Validation chart for examples of type and time. Exact devices with detailed information can be found by contacting us at www.loctiteAM.com

Additional Development Options

Colors: LOCTITE® IND405™ formula can be made in additional pigment colors.

LCD printers: LOCTITE® IND405™ currently testing, there's potential.

Limitations

Vat Printer: LOCTITE® IND405™ formula is not possible.

Post Cure: LOCTITE® IND405™ requires post curing.

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Note

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