LOCTITE®

stratasys PADT

LOCTITE 3D IND402™

A70 High Rebound Photoelastic Black

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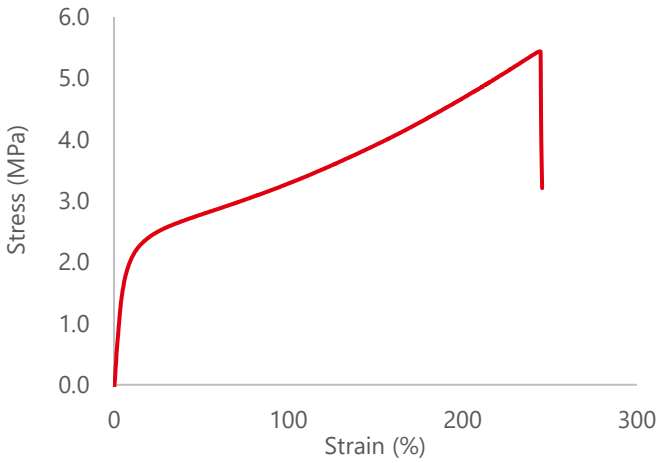
A70 HIGH REBOUND
PHOTOELASTIC
BLACK

LOCTITE 3D IND402™

LOCTITE 3D IND402 is a single component elastomer material with high elongation and high resilience, excellent tensile strength and high energy return while also not requiring thermal post processing.

Parts can be printed with various DLP platforms.



Benefits:

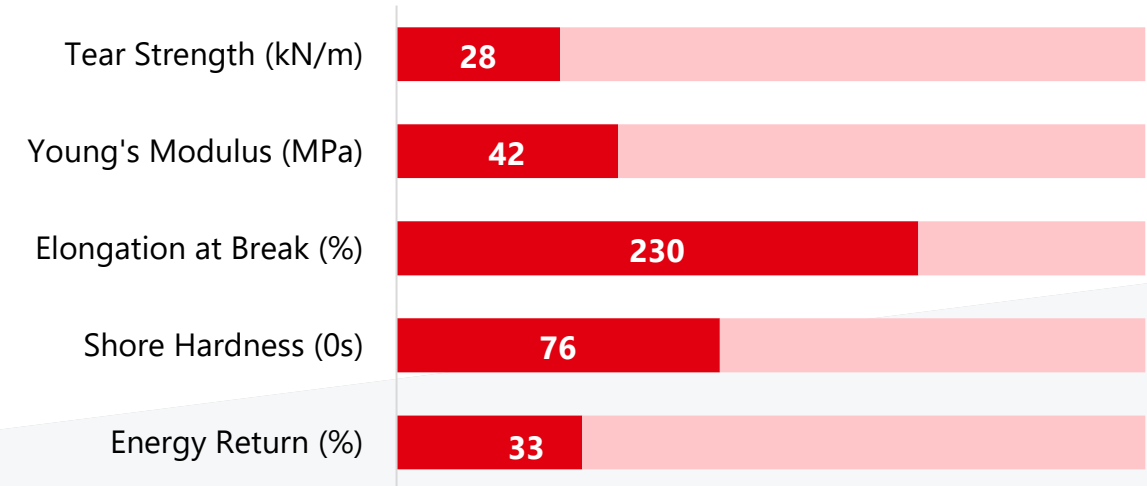
- True elastomeric behavior
- Excellent interlayer adhesion
- Good rebound performance

Ideal for:

- Consumer products
- Lattice structures for sportswear

Markets:

Industry | Automotive | Consumer Goods



**Values shown are linked to LOCTITE IND402 Black as reference, please refer to the specific mechanical properties for each of the colors shown in this document*

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PROPERTIES

Mechanical Properties	Measure	Method	Green	Post Processed
Tensile Stress at Yield	MPa	ASTM D638	-	-
Tensile Stress at Break	MPa	ASTM D638	2.3 ± 0.31 [9]	5.5 ± 0.2 [1]
Young's Modulus	MPa	ASTM D638	15 ± 2 [9]	42 ± 5 [1]
Elongation at Break	%	ASTM D638	176 ± 44 [9]	230 ± 10 [1]
Tear Strength	kN/m	ASTM D624	-	28 +/- 1 [5]
Energy Return	%	Internal	-	30 – 35 [2]
Other Properties				
Water Absorption (24hr)	%	ASTM D570	-	3.15 [4]
Water Absorption (72hr)	%	ASTM D570	-	-
Shore Hardness (0s, 3s)	A	ASTM D648	-	75,73 [7]
Solid Density	g/cm^3	ASTM D1475	-	1.1 [8]

Liquid Properties	Measure	Value
Viscosity at 25°C (77°F)	cP	14,500 [3]
Viscosity at 35°C (95°F)	cP	8,430 [6]
Viscosity at 40°C (104°F)	cP	6,028 [6]
Flow Characteristic	-	Self-leveling
Appearance Color	-	Black

"All specimen are printed unless otherwise specified." ASTM Methods: D638 Type IV, 5mm/min, D790-B , 2mm/min, D624, D570-98 24-hour water immersion, specimen 50.8mm diameter, 3.2mm thick.

Internal Data Sources:
[1]FOR18387, [2]FOR18388, [3]FOR18389, [4]FOR18665, [5]FOR18664, [6]FOR19857, [7]FOR20027, [8]FOR20028, [9]FOR18709

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WORKFLOW

Validated workflows need to be followed to achieve properties as provided in the TDS. 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 IND402 Black is formulated to print optimally on industrial DLP printer. Read the safety data sheet carefully to get details about health and safety instructions. Recommended print parameters:

- Shake resin bottle well before usage
- Temperature: 20°C to 35°C
- Intensity: 3 mW/cm² to 7 mW/cm²

Exposure time for an intensity of 6 mW/cm²

Layer Thickness (µm):	50	100	50
First layer time (s)	25	25	25
Burn in region (s):	2-4	4-6	2-4
Model Layer Exposure (s):			6.5

Ec (mJ/cm²)	6.06
Dp (mm):	0.09

POST PROCESSING

LOCTITE 3D IND402 Black 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	IPA	Manual	2 min	2	Ensure parts are dry before next interval
Dry	n.a.	Compressed air	30 s	1	Air pressure (30 psi)
Wait before post curing	n.a.	Ambient condition	60 min	1	Room temperature

POST CURING

LOCTITE 3D IND402 Black requires post curing to achieve specified properties. It is recommended that either an LED or wide spectrum lamp be used to post cure parts.

UC Curing Unit	UV Source	Intensity	Cure time/ side	Additional Settings (Shelf, Output Energy)
Loctite UVALOC 1000	Mercury Arc Bulb (broad spectrum)	30 mW/cm² at 365 nm	5 min	500 W, lowest shelf
Dymax 5000 EC Flood	Mercury Arc Bulb (broad spectrum)	148 mW/cm² at 380 nm	2 min	400W, Shelf K

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Notes

ADDITIONAL DEVELOPMENT OPTIONS

Colors: LOCTITE 3D IND402 formula can be made in additional pigment colors

Vat Printer: LOCTITE 3D IND402 is not compatible with SLA printing process

LCD printers: LOCTITE 3D IND402 formula shows limited path forward for LCD projector printers at this time.

LIQUID HANDLING

When handling liquid, always wear gloves and protective glasses to prevent skin and eye contact. ***User must provide adequate ventilation (like fume hood) or wear suitable respiratory protection (like filter type: A per EN 14387) when printing/processing.***

Please refer to the Safety Data Sheet (SDS) on this product for more information on safe handling.

LIMITATIONS

Post Cure: LOCTITE 3D IND402 requires broadband spectrum for post cure.

Formula Modification: LOCTITE 3D IND402 has limited potential for any tensile property adjustments.

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

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NOTE

The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.
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Version 2021/06/29