

Produkt: 3172

Hersteller: HENKEL KGAA

Warengruppe: 3DP

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## LOCTITE 3172 HDT40 HIGH IMPACT CLEAR

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# **LOCTITE®**

## **3172™**

**PhotoPlastic  
HDT40 High Impact  
Clear**

**LOCTITE®**  
5110 Port Chicago Hwy  
Concord CA 94520

**7/9/2020**

**Preliminary v2.1**



# 3172™ HDT40 High Impact Clear

## Description

LOCTITE® Engineering Grade products are high performance fluids developed to be highly consistent with extraordinary attributes. LOCTITE® 3172™ is a very strong and durable photopolymer with mechanical attributes similar to polypropylene. LOCTITE® 3172™ displays fantastic elongation, impact strength, and compression strength. Parts manufactured with LOCTITE® 3172™ can be machined, tapped, or polished. This product should only be printed on a DLP machine.

Available Colors: Gray, Clear

Mechanical Properties	Method	Green	Post Processed
Tensile Strength at Break	ASTM D638	14.5 ± 1 MPa <sup>[1]</sup>	38 ± 1.4 MPa <sup>[8]</sup>
Tensile Stress at Yield	ASTM D638	9.5 ± 1 MPa <sup>[1]</sup>	29.36 ± 1.3 MPa <sup>[8]</sup>
Young's Modulus	ASTM D638	209 ± 64 MPa <sup>[1]</sup>	1245 ± 43 MPa <sup>[8]</sup>
Elongation at Failure	ASTM D638	141 ± 4 % <sup>[1]</sup>	141 ± 4 % <sup>[8]</sup>
Flexural Stress at Yield	ASTM D790		37.6 ± 2.56 MPa <sup>[7]</sup>
Flexural Modulus	ASTM D790		1022 ± 76 MPa <sup>[7]</sup>
Flexural Strain at Break	ASTM D790		>10% <sup>[7]</sup>
<b>Other Properties</b>			
IZOD Impact Strength (Notched)	ASTM D256		42.6 ± 5 J/m <sup>[9]</sup>
IZOD Impact Strength (Unnotched)	ASTM D256		
HDT @ 0.455 MPa	ASTM D648		40°C <sup>[10]</sup>
Shore Hardness	ASTM D2240		70D <sup>[6]</sup>
Water Absorption	ASTM D570		0.36% <sup>[5]</sup>
Solid Density (Green)	ASTM D1475	1.128 <sup>[11]</sup>	1.128 <sup>[3]</sup>
Solid Density (Post Processed)	ASTM D1475		1.137 <sup>[3]</sup>

### Liquid Properties

Viscosity @ 25°C (77°F)	ASTM D7867	637 ± 150 cP <sup>[2]</sup>
Liquid Density	ASTM D1475	1.063 <sup>[3]</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, D1475, D7867@ 25°C (77°F)

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|-------------------------------|--------------------------------|
| 1. TaskID Reference: FOR19609 | 7. TaskID Reference: FOR17061  |
| 2. TaskID Reference: FOR17057 | 8. TaskID Reference: FOR17060  |
| 3. TaskID Reference: FOR16972 | 9. TaskID Reference: FOR17059  |
| 4. TaskID Reference: FOR19120 | 10. TaskID Reference: FOR18825 |
| 5. TaskID Reference: FOR17058 | 11. TaskID Reference: FOR20003 |
| 6. TaskID Reference: FOR17572 | 12. TaskID Reference: FOR20004 |



# 3172™ HDT40 High Impact Clear

## Machine Settings

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LOCTITE® 3172™ is formulated to print optimally on any DLP machine. It is recommended to print with 405 nm wavelength projectors with irradiance between 3-7 mW/cm<sup>2</sup>. Layer time is given below at 6 mW/cm<sup>2</sup>:

Layer Thickness: 25 µm    50 µm    100 µm					
Base Cure Time:	45 s	45 s	45 s	Ec (mJ/cm <sup>2</sup> )	7.4
Model Layer Cure Time:	2 s	3.5 s	6 s	Dp (mm):	0.15

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

## Post Processing

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LOCTITE® 3172™ 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](http://www.loctiteAM.com).

## Post Curing

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LOCTITE® 3172™ requires post curing to achieve specified properties. A wide array of post cure equipment can be used to cure appropriately. Exact devices with detailed information can be found by contacting us at [www.loctiteAM.com](http://www.loctiteAM.com).

## Additional Development Options

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Colors: LOCTITE® 3172™ formula is made with additional pigment colors.

Formula Modification LOCTITE® 3172™ has potential for tensile property adjustments.

## Limitations

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Post Cure: LOCTITE® 3172™ requires a UV/ Visible light post cure.

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## Clear Color Properties

Method: ASTM E308, Total Transmission

Part State	L*	a*	b*	C*	h	dE
Green / no post-processing <sup>[11]</sup>	90.83	-1.2	2.45	2.72	116.12	NA
Dymax 5000EC 5 minutes / side <sup>[11]</sup>	89.74	-0.37	1.23	1.28	106.6	1.834503
Loctite CL36 30min/side <sup>[12]</sup>	89.57	-0.23	0.73	0.77	107.63	2.342413

## QUV exterior weathering conditions (ASTM G-154—Cycle 1): Clear Color Mechanical Properties

Method: ASTM G-154—Cycle 1

QUV Exposure Time (Hrs)	Tensile Stress at break (MPa)	Yield Stress (MPa)	Young's Modulus (MPa)	Elongation at break (%)
0	37 ± 1.2	29.0 ± 1.5	1250 ± 40	140 ± 3
24	36.5 ± 3	26.5 ± 2	1140 ± 75	143 ± 10
192	31.8 ± 2	23.2 ± 0.5	1050 ± 14.5	141 ± 16
325	28.4 ± 3	33.0 ± 0.8	1400 ± 33.2	82 ± 30
650	26.5 ± 1	27.0 ± 0.5	1301 ± 29.5	100 ± 5

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## Note

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