Technisches Datenblatt



Produkt:	3172
Hersteller:	Henkel Kgaa
Warengruppe:	3DP
Artikelgruppe:	3DP RESINS
Download:	20.04.2024

LOCTITE 3172 HDT40 HIGH IMPACT CLEAR

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3172™

PhotoPlastic HDT40 High Impact Clear

LOCTITE® 5110 Port Chicago Hwy Concord CA 94520

Henkel

7/9/2020

Preliminary v2.1

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

Liquid Properties

Viscosity @ 25°C (77°F)	ASTM D7867	637 ± 150 cP ^[2]
Liquid Density	ASTM D1475	1.063 [3]

"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)

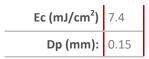
- 1. TaskID Reference: FOR19609
- 2. TaskID Reference: FOR17057
- 3. TaskID Reference: FOR16972
- TaskID Reference: FOR19120
 TaskID Reference: FOR17058
- TaskID Reference: FOR17061
 TaskID Reference: FOR17060
- PaskiD Reference: FOR17000
 TaskiD Reference: FOR17059
- 10. TaskID Reference: FOR18825
- 11. TaskID Reference: FOR20003
- 6. TaskID Reference: FOR17572
- 12. TaskID Reference: FOR20004



Machine Settings

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/cm². Layer time is given below at 6 mW/cm²:

Layer Thickness:	25 µm	50 µm	100 µm
Base Cure Time:	45 s	45 s	45 s
Model Layer Cure Time:	2 s	3.5 s	6 s



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

Post Processing

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 <u>www.loctiteAM.com</u>.

Post Curing

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 <u>www.loctiteAM.com</u>.

Additional Development Options

Colors: LOCTITE[®] 3172[™] formula is made with additional pigment colors. Formula Modification LOCTITE[®] 3172[™] has potential for tensile property adjustments.

Limitations

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



Clear Color Properties

Method: ASTM E308, Total Transmission	n					
Part State	L*	a*	b*	С*	h	dE
Green / no post-processing $^{[11]}$	90.83	-1.2	2.45	2.72	116.12	NA
Dymax 5000EC 5 minutes / side $^{[11]}$	89.74	-0.37	1.23	1.28	106.6	1.834503
Loctite CL36 30min/side [12]	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



Note

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