PRO476™

HDT60

Tough Black LCD

LOCTITE®
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PRO476™ HDT60 Tough Black LCD

Description

LOCTITE® PRO476™ is a high-strength engineering plastic with good impact resistance and excellent surface finish. Stiffness combined with toughness make this material ideal for a wide variety of tools on the production floor. The product is ideal for tooling, anatomical models, as well as consumer applications such as insoles. The unique set of performance attributes makes it comparable to ABS. Parts can be printed with various 405 nm LCD printers and can be machined, tapped, or polished for final finish.

Available Colors: Black

Mechanical Properties	**Method**	**Post Processed**
Tensile Stress at Yield	ASTM D638	46.1 MPa [1]
Tensile Stress at Break	ASTM D638	47.7 MPa [1]
Young's Modulus	ASTM D638	1685.8 MPa [1]
Elongation at Failure	ASTM D638	55.1% [1]
Max Flexural Stress	ASTM D790	84.6 MPa [2]
Flexural Modulus	ASTM D790	1946 MPa [2]
Flexural Strain at Break	ASTM D790	>10% [2]
Other Properties		
Heat Deflection Temperature @ 0.455 MPa	ASTM D648	60°C [3]
IZOD Impact Strength	ASTM D256	44 J/m [7]
Water Absorption (24 hour)	ASTM D570	1.75% [8]
Shore Hardness (Instant)	ASTM D2240	72D [4]
Shore Hardness (5 seconds)	ASTM D2240	67D [4]
Liquid Properties		
Viscosity @ 25°C (77°F)	ASTM D7867	734 cP [5]
Liquid Density @ 25°C (77°F)	ASTM D1475	1.08 g/cm^3 [6]

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 Method: D638 Type IV performed at 5mm/min; D790 performed at 2mm/min; IZOD impact strength samples were notched before post-cure.

1. Task ID: FOR23915
2. Task ID: FOR25148
3. Task ID: FOR24553
4. Task ID: FOR25159
5. Task ID: FOR25157
6. Task ID: FOR25158
7. Task ID: 25155
8. Task ID: 25160

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Machine Settings

LOCTITE® PRO476™ is formulated to print optimally on LCD Printers. It is recommended to print with 385 or 405 nm wavelength irradiance of >1 mW/cm².

Example Settings:
Prusa SL1 (~1 mW/cm^2) — 60 second Base Cure, 40 second Burn Layers (5 layers), 15 second Model Cure.
Phrozen Sonic XL 4K (~2.4 mW/cm^2) - 30 second Burn Layer Cure (5 layers), 12 second Model Layer Cure.

Post Processing

LOCTITE® PRO476™ 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 friendly cleaner. LOCTITE® recommends the following washing protocol:

1. 2 minute Glycol Ether TPM wash in an ultrasonic bath.
2. Dry with compressed air to remove residual solvent from the surface of the material.
3. 1-2 minute IPA wash in an ultrasonic bath.
4. Dry with compressed air to remove residual solvent from the surface of the material.
5. Optional: 1 minute IPA wash by hand if additional resin remains on the surface of the material.

Post Curing

LOCTITE® PRO476™ requires post curing to achieve specified properties. A wide array of post cure equipment 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® PRO476™ can be made with additional pigment colors.

Development Limitations

Vat Printer: LOCTITE® PRO476™ formula is not likely possible for printing on vat printers.
Cure Speed: The cure speed of this system cannot be significantly improved. This is an intrinsic limitation.

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Note

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