

**LOCTITE®**

**nexa3D®**

**xPP405-Black**

**PhotoPlastic**

**HDT50**

**High Elongation**

**Black**

# xPP405-Black HDT50 High Elongation Black

## Description

xPP405-Black is a high elongation and high toughness material with outstanding impact resistance and excellent surface finish. This stiff and durable high performance material is ideal for a wide variety of tools in the production floor, including manufacturing aids and final parts such as housings and consumer goods applications. The unique set of performance attributes makes it comparable to an unfilled thermoplastic like polypropylene. Parts can be printed with various DLP printers and machined, tapped, or polished for final finish.

Available Colors: Black, Clear

Mechanical Properties	Method	Green	Post Processed
Tensile Stress at Break	ASTM D638	24 ± 1 MPa <sup>[21]</sup>	35 ± 2 MPa <sup>[17]</sup>
Tensile Stress at Yield	ASTM D638	25 ± 1 MPa <sup>[21]</sup>	38 ± 1 MPa <sup>[17]</sup>
Young's Modulus	ASTM D638	897 ± 20 MPa <sup>[21]</sup>	1300 ± 33 MPa <sup>[17]</sup>
Elongation at Failure	ASTM D638	89 ± 8 % <sup>[21]</sup>	100 ± 12 % <sup>[17]</sup>
Maximum Flexural Stress	ASTM D790		45 ± 1 MPa <sup>[20]</sup>
Flexural Modulus	ASTM D790		1300± 65 MPa <sup>[20]</sup>
Flexural Strain at Break	ASTM D790		Does not Break <sup>[20]</sup>
Impact Strength—IZOD Notched	ASTM D256		62± 2 J/m <sup>[18]</sup>
Impact Strength—IZOD Unnotched	ASTM D256		>1500 J/m <sup>[18]</sup>
<b>Other Properties</b>			
HDT @ 0.455 MPa	ASTM D648		52.8°C <sup>[22]</sup>
Shore Hardness "D" (0s,3s)	ASTM D2240		80,76 <sup>[14]</sup>
Water Absorption	Internal		1% <sup>[15]</sup>
Liquid Density	ASTM D1475		1.046 <sup>[19]</sup>
Solid Density (Green)	ASTM D1475		1.116 <sup>[19]</sup>
Solid Density (Post Processed)	ASTM D1475		1.121 <sup>[19]</sup>
<b>Liquid Properties</b>			
Viscosity @ 25°C (77°F)	ASTM D7867		2410 cP <sup>[13]</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, 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: FOR21802
- 18) TaskID Reference: FOR18611
- 19) TaskID Reference: FOR18208
- 20) TaskID Reference: FOR18531
- 21) TaskID Reference: FOR19614

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## Post Processing

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xPP405-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 be washed in a compatible cleaner. Nexa3D 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.nexa3d.com](http://www.nexa3d.com).

## Post Curing

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xPP405-Black requires post curing to achieve specified properties. A wide array of post cure equipment can be used to cure xPP405-Black appropriately. A list of validated devices with detailed information can be found by contacting us at [www.nexa3d.com](http://www.nexa3d.com).

## Additional Development Options

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Colors: xPP405-Black formula can be made in additional pigment colors. LCD printers: xPP405-Black currently testing, there's potential.

## Limitations

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Vat Printer: xPP405-Black formula is not possible.

Post Cure: xPP405-Black requires UV/Visible light post curing.

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## Note

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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. Nexa3D 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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**NOTE:** Results may vary depending user workflow and geometry. Validation of final part is recommended.