



**xFLEX475**

**PhotoElastic  
60A High Rebound**

**Nexa3D**

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Ventura, CA 93003

nexa3D<sup>®</sup>



## Description

**Nexa3D xFLEX475** is an industrial strength UV resin that cures to a soft, elastomeric material. xFLEX475 is suitable for applications where resilience, snap back, and tear resistance is desired, such as lattice structures and functional prototyping. This single component resin is easy to print, making it a superior material for elastomeric applications.

Available colors: White, Black

## Mechanical Properties

<b>Mechanical Properties</b>	<b>Method</b>	<b>xFLEX475 White</b>	<b>xFLEX475 Black</b>
Tensile Stress at Break	ASTM D638	3.8 ± 0.8 MPa	2.48 ± 0.3 MPa
Young's Modulus	ASTM D638	4.6 ± 0.8 MPa	3.73 ± 0.5 MPa
Elongation at Failure	ASTM D638	158 ± 2.7 %	150 ± 6.7 %
Tear Strength	ASTM D624	11.77 ± 1.3 kN/m	7.3 ± 0.7 kN/m
Energy Return	Internal	39%	46.5%
<b>Other Properties</b>			
Shore Hardness (0s, 5s)	ASTM D2240	55A, 44A	
Solid Density (Green)	ASTM D792	1.43 g/cm <sup>3</sup>	
Solid Density (Cured)	ASTM D792	1.04 g/cm <sup>3</sup>	
Volumetric Shrinkage	Internal	2.26 g/cm <sup>3</sup>	
Water Absorption (24hr)	ASTM D570	2.1 ± 0.1%	
Water Absorption (72hr)	ASTM D570	4.5 ± 0.1%	
Water Absorption (168hr)	ASTM D570	6.5 ± 0.1%	
Viscosity @ 25°C (77°F)	ASTM D7867	1320cP	
Liquid Density	ASTM D1475	1.02 g/cm <sup>3</sup>	

\*Results based on validated workflow



## Validated Workflow

Exposure Parameters	NexaX default
Primary Wash	1min, xClean detergent in xWash station
Secondary Wash	2min, Isopropyl Alcohol
Dry	30min air dry
Inhibition	Spray with Mold Release
Cure	60min total cure time in xCure. Cure submersed in water using borosilicate glass container. Place container on floor of xCure. Flip part half-way through to ensure uniform exposure.
Inhibitor Rinse	Dip in IPA to remove mold release, drip dry

## Limitations

The mechanical and physical properties of **Nexa3D xFLEX475** are highly dependent on the printing parameters used as well as part geometry. It is common that validated workflows need to be adjusted for unusually thick or thin geometries. Even if the properties observed in your lab don't match the TDS, it does not signify that something is "wrong,". Parts may be tacky prior to post-cure.

Post curing of **Nexa3D xFLEX475** to reach stated property targets must be cured in water or an alternative inert medium. Deionized water is recommended. Coating parts with a spray-on mold release agent such as LOCTITE® Frekote 770-NC or Smooth-On Universal Mold Release prior to post curing will reduce the surface tack of a final part. After curing, the mold release can be rinsed off with water or Isopropanol.

Printing with **Nexa3D xFLEX475** requires detailed attention to interactions between the material and the hardware in use. Mechanical process settings must be optimized for each printer based on the hardware and software capabilities. Due to the low durometer and high elasticity of the material, printed parts may sway during tray release, Z-axis movement, and upon re-entering the resin vat. For this reason, the user must consider part orientation and support design carefully.

Typically larger supports and contacts are required and build height to width ratio should be kept near 1:1. Use wait time of 3-5 seconds to allow part and resin to settle. Parts are too soft to removing support nubs by sanding or other abrasive methods. Cutting supports with a scalpel or ultrasonic knife will leave a cleaner surface than tearing off or cutting with snips.

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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 and working conditions in your environment that are beyond our control. Nexa3D and Henkel are, 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. Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendations regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

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