

## PRODUCT DESCRIPTION

Loctite® 3D 3830™ is a light curing acrylic compound used for prototyping via stereolithography. Loctite® 3D 3830™ requires a very short exposure time and provides a very fine print resolution ideal for parts that require fine features. Loctite® 3D 3830™ has low shrinkage upon curing, maintaining part dimensions from conception to production. Excellent compatibility with PDMS coatings.

Loctite® 3D 3830™ provides the following product characteristics:

<b>Technology</b>	Stereolithography Resin
Appearance	Clear, White, Grey, Black <sup>LMS</sup>
Chemical Type	Acrylic
Odor	Mild
<b>Cure</b>	Ultraviolet (UV)/ Visible light
Viscosity	Low
<b>Application</b>	Prototyping
Specific Benefits	<ul style="list-style-type: none"> <li>• Rigid general purpose</li> <li>• Low shrinkage</li> <li>• Fine print resolution</li> <li>• Short exposure time</li> </ul>

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity g/cm<sup>3</sup> @ 25°C 1.1<sup>LMS</sup>

Flash Point - See MSDS

Viscosity, Cone & Plate, mPa\*s (cP):  
 Temperature: 25C, Shear Rate: 200 s<sup>-1</sup> 100-450<sup>LMS</sup>

## TYPICAL CURING PERFORMANCE

Loctite® 3D 3830™ can be cured by exposure to UV and Visible light of sufficient intensity and wavelength. Cure rate and ultimate depth of cure depend on light intensity, spectral distribution of the light source, exposure time and light transmittance of the printer window through which the light must pass. Loctite® 3D 3830™ will cure with DLP and Lasers ranging from 300-450nm.

The following working curve values were determined using a Loctite PR10 DLP printer at 405nm wavelength;

Measurement	Unit	Value
Critical Exposure (E <sub>c</sub> )	mJ/cm <sup>2</sup>	12.2
Penetration Depth (D <sub>p</sub> )	mm	0.150

## TYPICAL PROPERTIES OF CURED MATERIAL

Samples prepared at 0.050 mm layer thickness on LOCTITE PR10 DLP printer using recommended exposure settings. Samples post cured for 100s per side at 50mW/cm<sup>2</sup> @ 405nm wavelength using Loctite 405nm Flood System.

All data is recorded on specimens printed in the XY plane. Some variation is expected when printing in Z plane. Contact your local Loctite Technical Service team for further information.

### Physical Properties:

Shore Hardness, ISO 868, Durometer D	75
Volume Shrinkage, %	7.0
Linear Shrinkage, %	2.5

Physical Property	Unit	As Printed	Post Cure
Elongation, at break, ASTM D638	%	4.0-8.0	2.5-4.5
Tensile Strength, ASTM D638	MPa	35-45	40-55
	ksi	5.1-6.5	5.8-8.0
Tensile Modulus (Secant 0.002), ASTM D638	MPa	1400-1700	1900-2400
	ksi	203-246	275-348
Flexural Strength, ASTM D790	MPa	35-45	55-65
	ksi	5.1-6.5	8.0-9.4
Flexural Modulus (Secant 0.002), ASTM D790	MPa	1200-1350	1950-2370
	ksi	174-196	283-344
Heat Deflection Temperature, ASTM D648 @ 0.45MPa	°C	50-60	60-70
Notched IZOD Impact ASTM D256	J/m	15-20	13-17
Notched IZOD Impact ISO 180 Type 1A	kJ/m <sup>2</sup>	1.5-2.5	1.0-1.5

## GENERAL INFORMATION

**This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidizing materials.**

**For safe handling information on this product, consult the Safety Data Sheet (SDS).**

### Directions for use:

- This product is light sensitive; exposure to daylight, UV light and artificial lighting should be kept to a minimum during storage and handling.
- **Shake or stir Loctite 3D 3830™ well before use.**
  - Agitate resin before each print
  - Do not leave resin in printer tray when not in use

- Recommended Post Curing Process:
  - Rinse the printed part using an approved cleaner to remove uncured resin
  - 100s/side at 50mW/cm<sup>2</sup> at 405nm

### Loctite Material Specification <sup>LMS</sup>

LMS dated MONTH-DAY, YEAR. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

### Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labelling.

**Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties.**

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

### Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$   
 $\text{kV/mm} \times 25.4 = \text{V/mil}$   
 $\text{mm} / 25.4 = \text{inches}$   
 $\mu\text{m} / 25.4 = \text{mil}$   
 $\text{N} \times 0.225 = \text{lb}$   
 $\text{N/mm} \times 5.71 = \text{lb/in}$   
 $\text{N/mm}^2 \times 145 = \text{psi}$   
 $\text{MPa} \times 145 = \text{psi}$   
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$   
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$   
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$   
 $\text{mPa}\cdot\text{s} = \text{cP}$

### Note

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. Henkel 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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