

PRODUCT DESCRIPTION

LOCTITE 3D PU Bonder provides the following product characteristics:

Technology	Polyurethane, Micro emission
Appearance	Grey
Chemical Type	Polyurethane
Viscosity	High
Additional Information	Two-component
Application	Bonding
Key Substrates	3D Printed plastics and metals
Specific Benefits	<ul style="list-style-type: none"> • Super fast curing • Good paintability and sandability • Gap filling

LOCTITE® 3D PU Bonder is a two-component polyurethane adhesive which cures very fast at room temperature. For faster cure speed temperatures up to 60 °C are recommended. The product is particularly suited for all major 3D printed materials printed with SLA/DLP, SLS, FFF, MJF and BJ. LOCTITE® 3D PU Bonder is also suitable for bonding different substrates including metals, plastics and ceramics. The cured product has good paintability and sandability for final surface finishing.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Component A

Color grey
 Specific Gravity @ 25 °C 1.6

Component B

Color white
 Specific Gravity @ 25 °C 1.3

Mixing ratio A : B by volume 1 : 1

TYPICAL CURING PERFORMANCE

Curing is initiated on mixing the Part A and Part B components. Handling strength is achieved rapidly. Full strength is achieved over time.

Pot life (25 g, 23 °C); minutes 2
Tack-free (23 °C, 50 % rh); minutes 20
Shore A hardness 95

Cure Speed vs. Bond Gap

The rate of cure will depend on the bondline gap. Thin bond lines (gap <0.1mm) result in high cure speeds. Curing time at ambient temperature of a 3 mm bond gap is approximately 90 minutes. Heating to 60 °C for minimum of 5 minutes accelerates the cure.

Cure Speed vs. Humidity

Higher relative humidity levels can result in more rapid cure.

Pretreatment

When bonding low energy plastic surfaces LOCTITE® 3D PU Bonder can be combined with an appropriate primer. A very thin primer layer can increase the overall bond strength. A suitable primer can be selected from the LOCTITE® range.

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Tensile Shear Strength, according to DIN EN 1465
 Cured for 7 days @ 22 °C / 50% RH

PA12 (PA 2200)	N/mm ² 3.2 (psi) (465)
PA12 (PA 2200) / PA11 (PA 1101)	N/mm ² 3.6 (psi) (522)
PA11 (PA 1101)	N/mm ² 3.2 (psi) (465)
PA12 (PA 2200) / ABS	N/mm ² 4.5 (psi) (653)
PA11 (PA 1101) / ABS	N/mm ² 4.8 (psi) (696)
PA11 (PA 1101) / PE + Plasma	N/mm ² 3.7 (psi) (537)
PA11 (PA 1101) / PP + Plasma	N/mm ² 2.1 (psi) (305)
PA12 (PA 2200) / PE + Plasma	N/mm ² 2.7 (psi) (392)
PA12 (PA 2200) / PP + Plasma	N/mm ² 2.7 (psi) (392)
LOCTITE 3D 3840	N/mm ² 1.9 (psi) (276)
LOCTITE 3D 3830	N/mm ² 3.0 (psi) (435)

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 Material Safety Data Sheet (MSDS).

Directions for use:

1. Bond areas should be clean and free from uncured resin or loose powder. Clean all surfaces with a LOCTITE® cleaner and allow to dry.

2. Insert the cartridge into a suitable application gun. Apply pressure to the cartridge(s) to ensure a simultaneous and homogeneous flow of both components. Thereafter, attach the static mixer and cut the tip to provide for the desired bead size. Discard the first 2 cm of extruded adhesive bead. If material is left in the cartridge leave the static mixer attached. For further use of the product, simply remove the mixer and install a new one.
3. To improve bonding on low energy plastic surfaces, LOCTITE® primer may be applied to the bond area. Avoid applying excess primer and allow to dry according to use instructions.
4. Mount the appropriate static mix onto the cartridge and purge until material is uniformly mixed.
5. Apply adhesive to one of the bond surfaces. Do not use items like tissue or a brush to spread the adhesive.
6. Assemble the parts within a few seconds. The parts should be accurately located, as the short fixture time leaves little opportunity for adjustment.
7. Product should be allowed to develop full strength before subjecting to any service loads (typically 24 to 72 hours after assembly, depending on bond gap, materials and ambient conditions). Material is sandable for a better finish.

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 25 °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 Corporation 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.

Loctite Material Specification^{LMS}

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.

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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