

LIGHTLOCK GLUE

PRODUCT DESCRIPTION

Technology	Cyanoacrylate / UV / Visible
Chemical type	Alkoxyethyl cyanoacrylate with photoinitiator
Appearance (uncured)	Transparent yellow liquid
Components	One part – requires no mixing
Viscosity	Medium
Cure	Ultraviolet (UV) / Visible light
Secondary cure	Humidity

LIGHTLOCK GLUE is the first odorless light-curing instant adhesive. It is designed for bonding applications that require very rapid fixturing, fillet cure or surface cure. The UV and visible light cure properties facilitate rapid curing of exposed surface areas. Additionally, the product enables shadow cure properties for non-exposed surfaces, which makes it a unique product in the world of light-curing adhesives. An LED device offered along with the product allows the user to cure the adhesive on demand.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific gravity, 25 °C, g/cm³: 1.19
 Viscosity, Brookfield, 25 °C, mPa·s:
 Spindle 21, 50 rpm 180 to 220

TYPICAL CURING PERFORMANCE

TACK FREE TIME / SURFACE CURE

Tack free time is the time in seconds required to achieve a non-sticky surface when the adhesive is on one surface only or outside a bondline

UV/Visible light sources:

Electrodeless, V bulb:
 70 mW/cm², measured @ 365 nm: < 10 s.

Visible light sources:

LIGHTLOCK´s LED light:
 Measured @ 400 nm: < 10 s.

Blue laser:
 70 mW/cm², measured @ 445 nm: < 10 s.

CURE SPEED vs SUBSTRATE

The rate of cure will depend on the substrate used. The table below shows the fixture time achieved on different materials at room temperature. This is defined as the time at which an adhesive bond (250 mm²) is capable of supporting a 3 kg load for 10 seconds.

Fixture time measurements relate to instant cure (not - UV/Visible cure).

	Fixture time (seconds)
ABS	15
Acrylic	90
Polycarbonate	40
PVC	120

TYPICAL PERFORMANCE OF CURED MATERIAL

TENSILE SHEAR STRENGTH

The shear strength will depend on the substrate. The Table below shows the shear strength for different substrates using lap shears according to ISO 4587.

Cure with Blue-Violet LED light for 5 seconds

A significant portion of the product's shear strength is achieved by the initial light curing. However, maximum strength is obtained after 24 hours.

	Strength (N/mm ²) After 5 s LED curing, measured immediately	Strength (N/mm ²) After 5 s LED curing, measured after 24 h at RT
Acrylic	3.1	6.2*
Acrylic-Aluminium	6.8*	8.4*
Polycarbonate (PC)	3.0	7.6
PC-Aluminium	7.6	8.2

* Substrate failure

Shadow cure.

Non-exposed surfaces can also develop a high shear strength thanks to secondary cure by humidity. Maximum strength is achieved after 24 hours. The following table shows results on various substrates for a non-UV/Visible cure.

	Strength (N/mm ²) After 1 h at RT Non light cure	Strength (N/mm ²) After 24 h at RT Non light cure
Beech Wood	8.4	12.7
Aluminium A5754	6.1	8.1
Mild steel	5.5	11.0

GENERAL INFORMATION

For safe handling information on this product, consult the Safety Data Sheet (SDS): 242960B

Modo de empleo:

- 1) This product is light sensitive; exposure to daylight, UV light and artificial light should be kept to a minimum during storage and handling.
- 2) For best performance bond surfaces should be clean and free from grease.
- 3) Screw the cap with cannula into the tube to open it and start using the product. Make sure the cannula is properly adjusted.
- 4) Unscrew the cap and dispense the required amount of product for the desired application.
- 5) Do not forget to screw the cap back into the tube to prevent a prolonged exposure of the product to the light through the cannula.
- 6) Use only the LED light supplied in the base of the product to cure the adhesive that has just been applied. Make sure the light covers all the dispensed product.
- 7) The distance between the light and the adhesive should be less than 5 cm. The shorter the distance, the better cure efficiency for the product.
- 8) Product shelf-life is 12 months if stored under suitable conditions.

Storage:

Store the product in the unopened container in a fresh and dry location, protected from light.

Lightlock Glue Ltd cannot assume responsibility for a product that has been contaminated or stored under conditions other than those previously indicated.

Conversions:

$$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$$

$$\text{kV/mm} \times 25.4 = \text{V/mil}$$

$$\text{mm} / 25.4 = \text{in}$$

$$\mu\text{m} / 25.4 = \text{mil}$$

$$\text{N} \times 0.225 = \text{lb}$$

$$\text{N/mm} \times 5.71 = \text{lb/in}$$

$$\text{N/mm}^2 \times 145 = \text{psi}$$

$$\text{MPa} \times 145 = \text{psi}$$

$$\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$$

$$\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$$

$$\text{mPa}\cdot\text{s} = \text{cP}$$

NOTE

The data contained herein are furnished for information only and are believed to be reliable. Lightlock Glue Ltd cannot

assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, Lightlock Glue Ltd specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Lightlock Glue's products. Lightlock Glue Ltd specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits. The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Lightlock Glue Ltd patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.