Light Lock 30x

LIGHT-CURING, LOW-ODOR, FLEXIBLE CYANOACRYLATE

TECHNICAL DATA SHEET
JULY 2021

PRODUCT DESCRIPTION

Born2Bond™ Light Lock 30x is a low-odor, low-blooming, dual curing (contact and lightcuring), hybrid cyanoacrylate - acrylate adhesive. It is designed for bonding applications that require fast fixturing, coating or surface cure. The UV- and visible-light activates both cyanoacrylic and acrylic system allowing a rapid, tough and flexible bonding on transparent parts and on bulk or surface-coated areas. Moreover, the instant bonding capability ensures cure between opaque substrates (contact cure).

KEY FEATURES

- Dual cure formulation: instant and photo-cure
- Can be cured with visible and UV-LED light <5 sec
- Fixture time in 60 s (without light exposure)
- High flexibility
- Toughness
- Long open time without activation
- Dry to touch, tack free surface cure
- Cure-on-demand of excess material released from bondlines
- Low odour, low blooming
- Medium viscosity

DIRECTIONS FOR USE

1. Before applying Born2Bond™ Light Lock 30x, make sure the surface is clean, dry and grease-free.
2. Apply adhesive to one surface. Do not use items like tissues or a brush to spread the adhesive.
3. Assemble the parts within a few seconds. The parts should be accurately positioned, as the short fixture time leaves little opportunity for adjustment.
4. Bonds should be fixed or clamped until the adhesive has reached fixture. The product should be allowed to develop to full strength before subjecting it to any service loads (typically 24 to 72 hours after assembly, depending on bond
5. Optionally, using light from 370-440 nm, preferably 400-430 nm it is possible to accelerate the fixture time to less than 5 seconds. Typical irradiance should be of at least 20 mW/cm2 (400-430 nm)

APPLICATIONS

Typical applications for this product are electronics assembly, multi-substrate bonding : plastic to metal, glass to metal or plastic to rubber. Other applications include conformal coating, encapsulation and repair of small gaps and imperfections on painted surfaces.

STORAGE/SHELF LIFE

Optimal Storage: 2°C to 8°C (35.6°F to 46.4°F). Storage below 2°C (35.6°F) or greater than 8°C (46.4°F) can adversely affect the product's properties. If stored properly, this product has a shelf life of 9 months from the production date.

HEALTH/SAFETY

The Safety Data Sheet is available on the Bostik website and should be consulted for proper handling, cleanup and spill containment before use. Keep containers covered to minimize contamination.

LIMITATIONS

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. Material removed from containers may be contaminated during use. Do not return product to the original container. Bostik will not assume responsibility for product that 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.

Light Lock 30x

PRODUCT CHARACTERISTICS

Base Technology	Methoxyethyl Cyanoacrylate / Polyfunctional acrylate
Components	1K
Appearance / Color	Transparent /greenish
Cure	Contact / UV Light
Temperature Use Range	-40 °C to 60 °C (50 °F to 104 °F)

UNCURED PHYSICAL PROPERTIES

Viscosity at 25 °C (77 °F) Brookfield	150 - 350 cP
Density (ASTM D1875 23 °C)	1.11 g/mL
Refractive Index, ABBE	1.462

CURED PHYSICAL PROPERTIES

Shore Hardness D	60-65
Soft Point- HDT (ASTM E2092-18a)	48 °C (118.4 °F)
Tensile Strength (MPa - ISO 527)	38
Elongation at Break (% - ISO 527)	120
Glass Transition Temperature (ISO 6721)	68 °C (154.4 °F)
Coefficient of Linear Thermal Expansion (ISO 10545-8)	42 x 10^{-6}
Linear Shrinkage (% - ISO 10563)	10.7
Water Absorption after 24 h (ASTM D542)	2.0%

Electrical Properties of Resistivity IEC 60093

Surface resistivity DC 500 V (Ohm)	$7.0 \cdot 10^{13}$
Volume resistivity DC 1kV (Ohm.m)	$2.1 \cdot 10^{12}$

Corrected Dissipation Factor, Dielectric Constant IEC 60250

D @ 1 kHz	0.053
k' @ 1 kHz	8.86
D @ 1 MHz	0.038
k' @ 1 MHz	4.93
DC breakdown voltage according to IEC 60243-2	18.8 kV/mm

FIXTURE TIME

Contact Cure (0.1N/mm²) -Without light activation (0.02 mm gap)	
Stainless Steel (A316)	80 - 120 seconds
Steel (Mild Steel)	10 - 90 seconds
Aluminum (A5754)	40 - 90 seconds
Neoprene	15 - 90 seconds
EPDM	10 - 90 seconds
Rubber, nitrile	15 - 90 seconds
ABS	15 - 90 seconds
PVC	30 - 90 seconds
Polycarbonate	35 - 120 seconds
Phenolic	30 - 90 seconds
Leather	30 - 90 seconds
Polycarbonate / ABS	30 - 90 seconds
Curing speed with UV * Light	
PMMA	< 5 seconds

* UV LED 405 nm UV Visible LED (28mW/cm2).

BONDING PERFORMANCE

Lap shear strength (ISO 4587) @ 23 °C (73.4 °F) (MPa)

After 10 s curing UV LED (0.02 mm gap)**

Polycarbonate	3	+/- 1	
Polycarbonate / Aluminum (A5754)	3	+/- 1	
Polycarbonate/ Steel (Grit blasted)	3	+/- 1	

After 24 h curing at 23 °C (73.4 °F)

ABS	6	+/- 1	SF **
PVC	2	+/- 1	
Phenolic	8	+/- 1	

After 60 s curing UV LED ** + 1 week at 23 °C (73.4 °F) (0.02mm gap)

Polycarbonate	3	+/- 1
Polycarbonate/ Steel (Grit blasted)	5	+/- 1

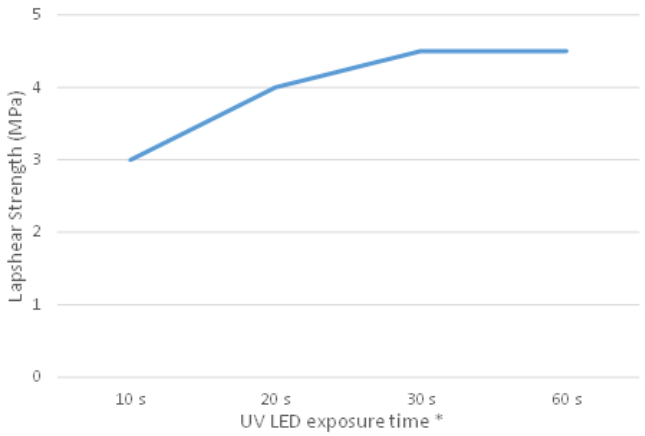
** Substrate failure

Light Lock 30x

Lap shear strength (MPa) vs UV* exposure time (s) @ 23 °C(73.4 °F), ISO 4587

Polycarbonate - Steel (grit blasted)

0,02mm gap

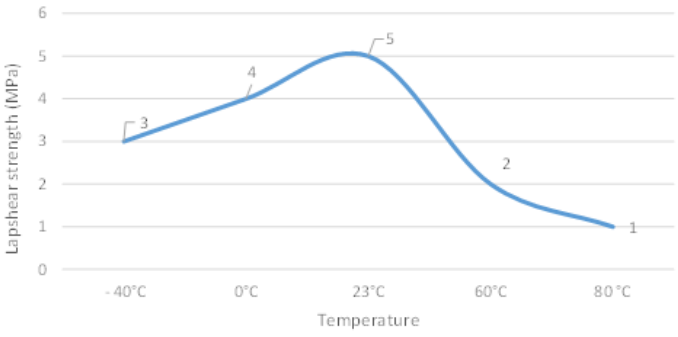


HOT STRENGTH

Lap shear Strength vs temperature (°C), ISO 4587 Cured with UV LED (405 nm UV Visible LED - 28 mW/cm²) for 60 s and left for 1 week @ 23°C (73,4 °F)

Polycarbonate - Steel (grit blasted)

0.02 mm gap



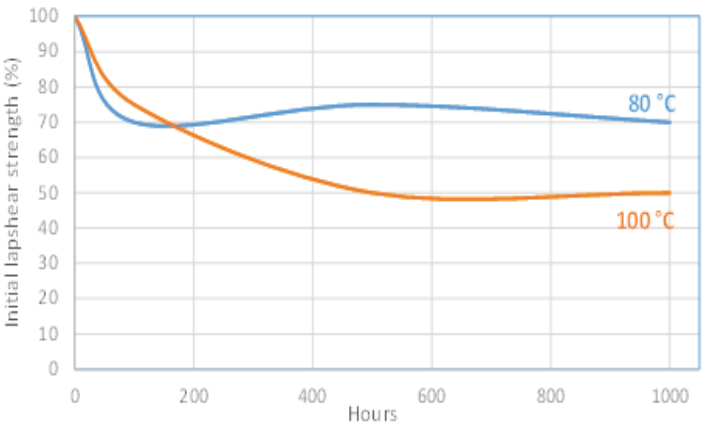
HEAT AGING

Lap shear Strength after aging at the temperature, ISO 4587

Cured with UV LED (405 nm UV Visible LED - 28 mW/cm²) for 60 s and left for 1 week @ 23 ° C (73,4 °F)

Polycarbonate - Polycarbonate

0.02 mm gap



CHEMICAL/SOLVENT RESISTANCE

Lap shear Strength after aging in solvents, ISO 4587 Cured with UV LED (405 nm UV Visible LED - 28 mW/cm²) for 60 s and left for 1 week @ 23 °C (73,4 °F)

Polycarbonate - Polycarbonate

0.02 mm gap

% of Initial Strength vs. Exposure Time (hours) and vs. Type of Contaminant

Testing on Polycarbonate		% of Initial Strength		
ENVIRONMENT	TEMP	100 H	500 H	1000 H
Windex	23°C (73.4°F)	85	40	30
Oleic Acid	23°C (73.4°F)	100	120	90
Sunscreen	23°C (73.4°F)	85	100	80
IPA	23°C (73.4°F)	95	80	65

* 405 nm UV Visible LED (28 mW/cm²)

Always use glasses and gloves when applying adhesives.

After curing over 1 week at 23 °C (73.4 °F)

Steel (grit Blasted) - Steel (grit Blasted)

0.02 mm gap

% of Initial Strength vs. Exposure Time (hours) and vs. Type of Contaminant

Testing on GMBS		% of Initial Strength		
ENVIRONMENT	TEMP	100 H	500 H	1000 H
Motor oil	23°C (73.4°F)	80	60	50
Ethanol	23°C (73.4°F)	40	5	5
Gasoline	23°C (73.4°F)	50	20	25
IPA	23°C (73.4°F)	55	45	25

HEAT/HUMIDITY RESISTANCE

Lap shear Strength after aging under humid conditions

ISO 4587

After curing over 1 week at 23 °C (73.4 °F)

Steel (grit blasted) - Steel (grit basted)

0.02 mm gap

% of Initial Strength vs humid aging conditions

	% of Initial Strength		
ENVIRONMENT	100 H	500 H	1000 H
95% RH & 40°C (104°F)	40	15	10

Cured with UV LED * for 60 s and leave it for 1 week @ 23 °C (73,4 °F)

0.02 mm gap

% of Initial Strength vs humid aging conditions

	% of Initial Strength		
ENVIRONMENT - 95% RH & 40°C (104°F)	100 H	500 H	1000 H
Polycarbonate	90	55	75
GMBS-Polycarbonate	75	50	40

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* 405 nm UV Visible LED (28 mW/cm^2)

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