Light Lock HV

LOW-ODOR, LIGHT-CURING CYANOACRYLATE

TECHNICAL DATA SHEET

Revised October 2019

PRODUCT DESCRIPTION

Born2Bond™ Light Lock HV is a low-odor, low-blooming, dual curing (contact and lightcuring), cyanoacrylate adhesives. They are designed for bonding applications that require fast fixturing, coating or surface cure. The UV- and visible-light cure sensitivity allows rapid bonding through transparent parts and quick curing of light-exposed bulk or surface-coated areas, while the instant bonding capability ensures cure between opaque substrates (contact cure).

KEY FEATURES

- → Dual cure formulation: instant and photo-cure
- → Fixture time in 60 s (without light exposure)
- → Can be cured with visible and UV-LED light <5 sec
- → Long open time without activation
- → Dry to touch, tack free surface cure
- → Cure-on-demand of excess material released from bondlines
- → Bonds, fills, reconstructs and coats
- → Odorless, low blooming
- → Non-lachrymatory, non-irritant, label free
- → Available in a range of viscosities : HV and GEL

DIRECTIONS FOR USE

1. Before applying Born2Bond Light Lock HV, 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 gap, materials and ambient conditions).

APPLICATIONS

Typical applications for this product are conformal coating, encapsulation, needle bonding, perfume and liquor bottle metal bonding, electronics assmbly, Plastic to metal bonding for hearing aids, and glass to metal bonding for jewelry and watches.

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 12 months from the packaging 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.

*Depending on substrates. **Except polyolefins.
Always use glasses and gloves when applying adhesives.

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PRODUCT CHARACTERISTICS

Base Technology	Methoxyethyl Cyanoacrylate
Components 1k - 2k	1k
Appearance/Color	Transparent/yellowish*
Temperature Use Range	-40°C to 80°C (-40°F to 176°F)
VOC Content (ISO 11890-2)	27 g/L

*before curing

UNCURED PHYSICAL PROPERTIES

Viscosity at 23°C (73.4°F)*	600 - 900 cP
Specific Gravity (ASTM D1875: 23°C / 73.4°F)	1.10 g/mL
Refractive Index, ABBE	1.48 - 1.49

*based on Brookfield viscometer

CURED PHYSICAL PROPERTIES

Shore Hardness D (ISO 868-2003)	76
Soft Point - HDT (ASTM E2092-18a)	60°C (140°F)
Tensile Strength	29.2 MPa
Elastic Modulus	2600 MPa
Elongation at Break	1.5%
Glass Transition Temperature (ISO 6721)	92°C (197.6°F)
Coefficient of Linear Thermal Expansion (ISO 10545-8)	47×10^{-6}
Water Absorption (after 24 hrs) (ASTM D542)	3.3%
Impact Resistance (after 24 hrs) (ISO 9653)	13.0 kJ/m²
Electrical Properties of Resistivity IEC 60093	
Surface resistivity DC 500 V (Ohm)	$3.9 \cdot 10^{14}$
Volume resistivity DC 1kV (Ohm.m)	$1.8 \cdot 10^{14}$
Corrected Dissipation Factor, Dielectric Constant IEC 60250	
D @ 1 kHz	0.0284
k' @ 1 kHz	2.90
D @ 1 MHz	0.0310
k' @ 1 MHz	2.58
DC breakdown voltage according to IEC 60243-2	59.3 kV/mm

CONVERSIONS

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = in
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·mm x 0.142 = oz·in
mPa·s = cP

FIXTURE TIME

Contact Cure* (0.1N/mm²)	
Stainless Steel (A316)	40 - 70 seconds
Steel (Mild Steel)	10 - 30 seconds
Aluminum (A5754)	10 - 40 seconds
Neoprene	20 - 50 seconds
EPDM	10 - 30 seconds
Rubber, nitrile	10 - 30 seconds
ABS	20 - 60 seconds
PVC	40 - 90 seconds
Polycarbonate	30 - 70 seconds
Phenolic	30 - 70 seconds
Wood (Oak)	>15 minutes
Wood (Pine)	35 - 70 seconds
Chipboard	70 - 100 seconds
Leather	15 - 30 seconds
PC/ABS	25 - 70 seconds
Paper	20 - 40 seconds
Curing Speed with Light* - 405 nm UV Visible LED (28 mW/cm²)	
PMMA	< 5 seconds

*if stored in proper conditions

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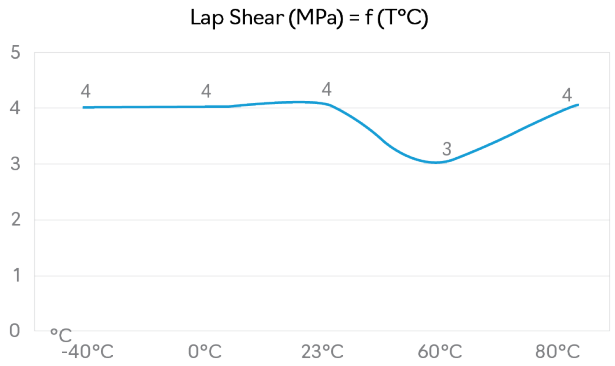
BONDING PERFORMANCE

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

@ 2mm/min after 10s Curing UV LED			
PC / Steel (grit-blasted)	6	+/- 1	
PC / Aluminum (A5754)	4	+/- 1	
PC / Polycarbonate	2	+/- 1	SF
@ 2mm/min after 24h Curing at RT			
ABS	6	+/- 1	SF
PVC	4	+/- 2	SF
Phenolic	7	+/- 1	
@ 2mm/min after 1 Week Curing at RT			
Polycarbonate	4	+/- 1	SF

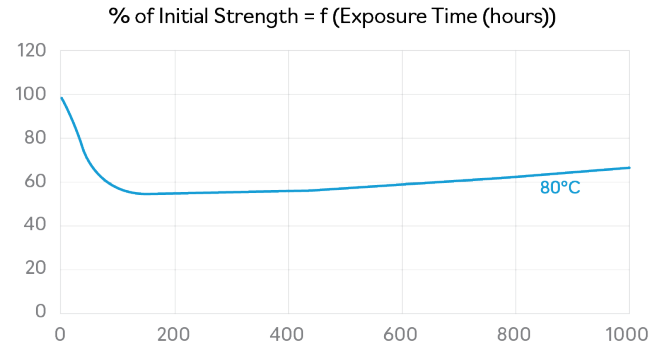
HOT STRENGTH

The graph below shows the adhesive performance on grit-blasted, mild steel (GBMS) at various temperatures. The adhesive was cured for one week at 22°C (71.6°F). The lap shear strength was tested according to ISO 4587. The strength test was performed in a climatic chamber that was set up for 30 minutes before testing at the indicated temperatures.



HEAT AGING

The graph below shows the heat aging results. The adhesive was aged at the temperature indicated, tested at 22°C (71.6°F) and cured for one week. The lap shear strength was tested according to ISO 4587 on grit-blasted, mild steel (GBMS).



CHEMICAL/SOLVENT RESISTANCE

Aged under conditions indicated and tested on GMBS.

% 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)	43	51	56
Oleic Acid	23°C (73.4°F)	83	93	61
Sunscreen	23°C (73.4°F)	58	53	64
IPA (70%)	23°C (73.4°F)	58	55	64
ENVIRONMENT	**TEMP**	**72 H**		**168 H**
Sebum	67°C (152.6°F)	65		65
	85°C (185°F)	61		n/a

HEAT/HUMIDITY RESISTANCE

Aged under conditions indicated and tested @ 40°C (104°F).

% of Initial Strength vs. Exposure Time (hours)			
	% of Initial Strength		
ENVIRONMENT - 95% RH & 40°C (104°F)	100 H	500 H	1000 H
GBMS	75	50	0
Polycarbonate	56	58	47

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