

# Light Lock MV

**LOW-ODOR, LIGHT-CURING CYANOACRYLATE**

TECHNICAL DATA SHEET

Revised 15/01/2021



## PRODUCT DESCRIPTION

**Born2Bond™ Light Lock MV** 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
- Low odor, low blooming
- Available in a range of viscosities: MV, HV and Gel

## DIRECTIONS FOR USE

1. Before applying Born2Bond Light Lock MV, 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 assembly, 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.

## PRODUCT CHARACTERISTICS

Base Technology	Methoxyethyl Cyanoacrylate
Components 1k - 2k	1k
Appearance/Color	Transparent/greenish
Temperature Use Range	-40°C to 80°C (-40°F to 176°F)
VOC Content (ISO 11890-2)	23 g/L

## UNCURED PHYSICAL PROPERTIES

Viscosity at 23°C (73.4°F)*	180 - 220 cP
Specific Gravity (ASTM D1875: 23°C / 73.4°F)	1.11 g/mL
Refractive Index, ABBE	1.45 - 1.46

\*based on Brookfield viscometer

## CURED PHYSICAL PROPERTIES

Shore Hardness D (ISO 868-2003)	81
Soft Point - HDT (ASTM E2092-18a)	57°C (134.6°F)
Glass Transition Temperature (ISO 6721)	90°C (194°F)
Coefficient of Linear Thermal Expansion (ISO 10545-8)	$55 \times 10^{-6}$
Water Absorption (after 24 hrs) (ASTM D542)	5.1%
Impact Resistance (after 24 hrs) (ISO 9653)	14.1 kJ/m <sup>2</sup>
<b>Electrical Properties of Resistivity IEC 60093</b>	
Surface resistivity DC 500 V (Ohm)	$1.9 \cdot 10^{15}$
Volume resistivity DC 1kV (Ohm.m)	$4.8 \cdot 10^{13}$
<b>Corrected Dissipation Factor, Dielectric Constant IEC 60250</b>	
D @ 1 kHz	0.027
k' @ 1 kHz	4.08
D @ 1 MHz	0.02
k' @ 1 MHz	3.73
DC breakdown voltage according to IEC 60243-2	36.5 kV/mm

## CONVERSIONS

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

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

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

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

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

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

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

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

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

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

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

## FIXTURE TIME

### Contact Cure\* (0.1N/mm<sup>2</sup>)

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	10 - 50 seconds
PVC	40 - 90 seconds
Polycarbonate	15 - 60 seconds
Phenolic	40 - 80 seconds
Wood (Oak)	>15 minutes
Wood (Pine)	35 - 70 seconds
Chipboard	20 - 80 seconds
Leather	10 - 30 seconds
PC/ABS	25 - 60 seconds
Paper	15 - 40 seconds

### Curing Speed with Light\* - 405 nm UV Visible LED (28 mW/cm<sup>2</sup>)

PMMA	< 5 seconds
------	-------------

\*if stored in proper conditions

## BONDING PERFORMANCE

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

#### After 10s Curing under UV LED\*\*

PC / Steel (grit-blasted)	2	+/- 1
PC / Aluminum (A5754)	2	+/- 1
PC / Polycarbonate	5	+/- 1

#### After 24h Curing at RT

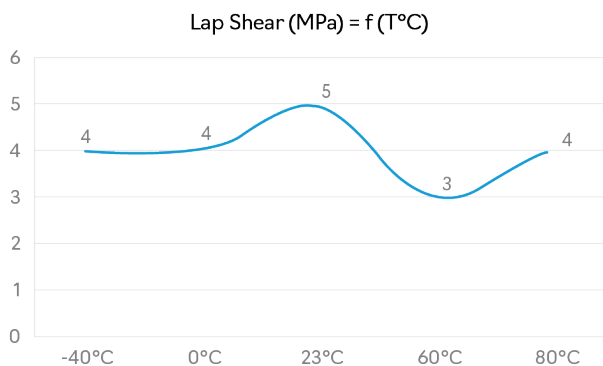
ABS	5	+/- 1	SF*
PVC	6	+/- 1	SF*
Phenolic	11	+/- 1	

#### After 1 Week Curing at RT

Polycarbonate	4	+/- 1	SF*
GBMS/PC	8	+/- 1	SF*

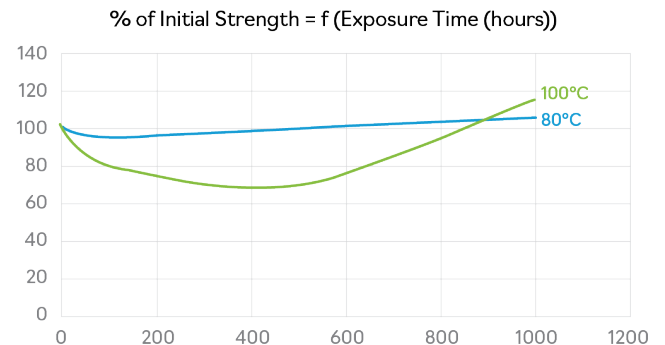
## HOT STRENGTH

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 GBMS.

% 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
Motor oil	23°C (73.4°F)	100	100	110
Ethanol	23°C (73.4°F)	105	100	90
Gasoline	23°C (73.4°F)	100	90	90
IPA	23°C (73.4°F)	110	120	110
Water	23°C (73.4°F)	40	20	20

## HEAT/HUMIDITY RESISTANCE

Aged under conditions indicated and tested @ 23°C (73,4°F).

% of Initial Strength vs. Exposure Time (hours)			
ENVIRONMENT - 95% RH & 40°C (104°F)	% of Initial Strength		
	100 H	500 H	1000 H
GBMS	60	40	50
Polycarbonate	100	75	95

\*Substrate failure \*\*UV LED 405 nm UV Visible LED (28mW/cm2).  
Always use glasses and gloves when applying adhesives.

## PRODUCT DISCLAIMER

Bostik offers this Technical Data Sheet ("TDS") for descriptive and informational use only. It is not a warranty, a contract or a substitute for expert or professional advice. Please also see the local product Safety Data Sheet for health and safety considerations.

The statements, technical information, data, and recommendations contained in this TDS are provided 'AS IS' and are not warranted or guaranteed in any way. They represent typical results for the products and are based on Bostik's research only. Since the conditions and methods of use of the products are beyond our control, Bostik expressly disclaims any and all liability and damages of whatever kind or nature that may arise from any use of the products, the results therefrom, or reliance on the information contain herein.

This TDS is one of several tools that may be used to help you find the product best suited for your needs. It is used at your own risk, and by using it, you are knowingly accepting and assuming any and all risks associated with its use and recommendations. BUYERS AND USERS ASSUME ALL RESPONSIBILITY AND LIABILITY FOR ANY AND ALL LOSS OR DAMAGE OF WHATEVER KIND OR NATURE ARISING FROM OR RELATED TO THE HANDLING OR USE OF BOSTIK'S PRODUCTS. The performance of the product, its shelf life, and application characteristics will depend on many variables, including but not limited to the kind of materials to which the product will be applied, the environment in which the product is stored and/or applied,

and the equipment used for application, among other things. Any change in any of these variables can affect the product's performance. You are responsible to test the suitability of any product in advance for any intended use or application. Bostik does not guarantee the reliability, completeness, use, or function of the statements, technical information, data, and recommendations contained in this TDS. Nothing contained herein constitutes a license to practice under any patent, and it should not be construed as an inducement to infringe any patent. You are advised to take appropriate steps to be sure that any proposed use of the products will not result in patent infringement.

The information provided herein relates only to the specific products designated and may not be applicable when such products are used in combination with other materials or in any process. The product is sold pursuant to a supply agreement and/or Bostik's Terms and Conditions of Sale, which set forth the sole warranty, if any, that applies to the product. **NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE OR WARRANTY OF MERCHANTABILITY, IS MADE CONCERNING THE PRODUCTS DESCRIBED OR THE INFORMATION PROVIDED HEREIN, AND TO THE MAXIMUM EXTENT ALLOWED BY LAW, SUCH WARRANTIES ARE HEREBY DISCLAIMED. BOSTIK DISCLAIMS ANY LIABILITY FOR DIRECT, INCIDENTAL, CONSEQUENTIAL, OR SPECIAL DAMAGES TO THE MAXIMUM EXTENT ALLOWED BY LAW.**