MP-515

TWO-COMPONENTS HIGH PERFORMANCE CYANOACRYLATE

TECHNICAL DATA SHEET

Revised 12/2022



PRODUCT DESCRIPTION

Born2Bond™ MP-515 is a two component instant semi-structural adhesive. Its patented technology provides gap filling properties with excellent adhesion to a very broad range of materials and surfaces (including aluminum). Curing time and working time are among 5 and 10 minutes. Born2Bond MP515 has an excellent water heat resistance. The transparent gel consistency enables application in any orientation whilst the static mixing nozzle ensures uniform and precise application for exceptional user convenience.

KEY FEATURES

- → High Strength performance
- → Humidity and temperature resistance
- → Multi-material adhesion
- → Fills gaps up to 5 mm
- → Open time 5 minute

DIRECTIONS FOR USE

1. Before applying Born2Bond™ MP515, make sure the surface is clean, dry and grease-free.
2. To use, Part A and Part B must be blended.
   - → Product can be applied directly from the syringe using the plunger supplied and dispensed through the recommended mixing nozzle.
3. Hold the syringe upright and insert the plunger.
   - → While keeping the syringe in an upright position, remove the cap, attach the mixing nozzle, and begin dispensing the adhesive upward until any bubbles present in the smaller component have been removed.
4. Dispense and discard a bead as long as the mixing nozzle, to ensure sufficient mixing.
5. Apply the mixed adhesive to one of the bond surfaces to be joined.
   - → Parts should be assembled immediately after the mixed adhesive has been applied.
   - → Bonds should be held by fixing or clamping until the adhesive has cured. Prevent assembled parts from moving during cure.
   - → The bond should be allowed to develop to full strength before being subjected to any servic e load (typically 24 hours).

APPLICATIONS

Typical applications for this product are structural bonding, magnet bonding, gap filling, glass bonding, elastomer bonding, plastic bonding, metal bonding.

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 - Part A/B	Ethyl Cyanoacrylate
Components 1k - 2k	2k
Mix Ratio	4:1
Appearance/Color	Whitish
Gap Filling Capacity	5mm (0.2In)
Temperature Use Range	-40°C to 120°C (-40°F to 248°F)
Open Time	5 mins
Mixer Life	5 mins
VOC Content - Part A (ISO 11890-2)	34 g/L
VOC Content - Part B (ISO 11890-2)	2.2 g/L

UNCURED PHYSICAL PROPERTIES

Viscosity at 25°C (77°F)* - Part A	120000 - 180000 cP @ 1.5 rpm 5000 - 10000 cP @ 50 rpm
Viscosity at 25°C (77°F)* - Part B	40000 - 70000 cP @ 1.5 rpm 1000 - 3000 cP @ 50 rpm
Specific Gravity (ASTM D1875: 23°C / 73.4°F)	1.090 g/mL (A) 1.136 g/mL (B)
Refractive Index, ABBE	1.49 - 1.51

*based on Brookfield viscometer

CURED PHYSICAL PROPERTIES

Shore Hardness D (ISO 868-2003)	65
Soft Point - HDT (ASTM E2092-18a)	65.6°C (150°F)
Tensile Strength (ISO 527)	21 MPa
Elastic Modulus (ISO 527)	800 MPa
Elongation at Break (ISO 527)	4%
Glass Transition Temperature (ISO 6721)	111°C (231.8°F)
Coefficient of Linear Thermal Expansion (ISO 10545-8)	$80 \cdot 10^{-6}$
Linear Shrinkage (ISO 10563)	9.4%
Water Absorption (after 24 hrs) (ASTM D-542)	1.23%
Impact Resistance (after 24 hrs) (ISO 9653)	5.6 kJ/m²
Surface Resistivity DC 500V (IEC 60093 (Ohm)	$1.94 \cdot 10^{14}$ Ohm
Volume resistivity DC 1kV (IEC 60093)	$1.1 \cdot 10^{13}$ Ohm.m

Corrected Dissipation Factor, Dielectric Constant IEC 60250	
D @ 1 kHz	0.004
k' @ 1 kHz	1.23
D @ 1 MHz	0.010
k' @ 1 MHz	1.20

DC breakdown voltage according to IEC 60243-2	21.85 kV/mm
DC breakdown strength according to IEC 60243-2	15.45 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

Fixture Time* (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	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

*if stored in proper conditions

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CURING SPEED VS. TEMPERATURE AND HUMIDITY

The rate of cure depends on the ambient temperature.

The temperature can quicken the curing speed. Born2Bond™ Structural has been designed to be applied at room temperature (23°C +/- 2°C / 73.4°F +/- 3.6°F). Boundary conditions for performance bonding are between 10°C (50°F) and 40°C (140°F), with ideal conditions between 20°C (68°F) and 30°C (86°F).

Humidity can also quicken the curing speed. Boundary conditions for performance bonding are between 30%RH and 70%RH, with ideal conditions between 40%RH and 60%RH.

BONDING PERFORMANCE

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

After 24 hours curing @ RT			
Grit-Blasted Mild Steel (GBMS)	19	+/- 1	
Aluminum (A5754)	12	+/- 1	
ABS	5	+/- 1	SF*
PVC	8	+/- 1	SF*
Phenolic	14	+/- 1	
Polycarbonate	5	+/- 1	SF*

*Substrate failure

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 GMBS		% of Initial Strength		
ENVIRONMENT	TEMP	100 H	500 H	1000 H
Motor Oil	40°C (104°F)	101	103	96
Gasoline	23°C (73.4°F)	84	70	70
IPA	23°C (73.4°F)	102	87	92
Water	23°C (73.4°F)	86	84	81
Glycol	23°C (73.4°F)	92	85	75
Glycol	80°C (176°F)	62	49	13

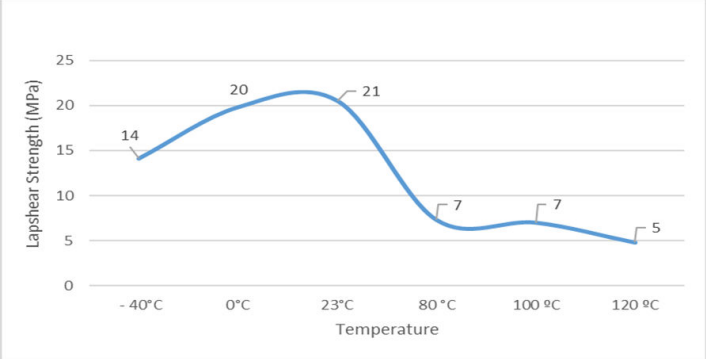
HEAT/HUMIDITY RESISTANCE

Aged under conditions indicated and tested @ 23°C (73,4°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	65	66	65
Polycarbonate	87	89	74
	% of Initial Strength		
ENVIRONMENT - 95% RH & 60°C (140°F)	100 H	500 H	1000 H
Polycarbonate	64	71	71

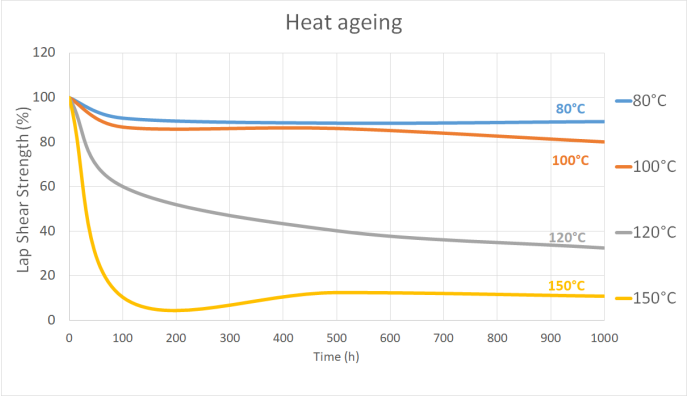
HOT STRENGTH

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).



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