Aquafast

MOISTURE RESISTANT INSTANT ADHESIVE

TECHNICAL DATA SHEET
APRIL 2022



PRODUCT DESCRIPTION

Born2Bond™ Aquafast is a low-medium viscosity instant adhesive which proivdes high adhesion performance even in high humidity environment. The product has good bonding properties to a very broad range of materials such as metals (including aluminum), plastics and rubbers.

KEY FEATURES

- → Fixture time : 15 seconds*
- → High resistance to moisture.
- → Service temperature: -40 up to 120 °C
- → Excellent adhesion to metals
- → Exceptional resistance to most solvents and oils
- → Bonds a large range of materials**
- → Transparent and easy to use

DIRECTIONS FOR USE

1. Before applying Born2Bond Aquafast 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

Substrate bonding that are subject to high humidity conditions, such us the applications that require cataplasma test.

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	Ethyl Cyanoacrylate
Components 1k - 2k	1k
Appearance/Color	Transparent, colorless to straw colored gel
Temperature Use Range	-40°C to 120°C (-40°F to 248°F)
VOC Content (ISO 11890-2)	41 g/L

UNCURED PHYSICAL PROPERTIES

Viscosity at 25°C (77°F)*	90-150 cP
Specific Gravity (ASTM D1875: 23°C / 73.4°F)	1.07 g/mL
Refractive Index, ABBE	1.45 - 1.46

*based on Brookfield viscometer

CURED PHYSICAL PROPERTIES

Soft Point - HDT (ASTM E2092-18a)	56°C (132.8°F)
Glass Transition Temperature (ISO 6721)	115 °C (239°F)
Coefficient of Linear Thermal Expansion (ISO 10545-8)	79 x 10^{-6}
Water Absorption (after 24 hrs) (ASTM D542)	0.8%
Impact Resistance (after 24 hrs) (ISO 9653)	12.6 kJ/m^2
Electrical Properties of Resistivity IEC 60093	
Surface resistivity DC 500 V (Ohm)	$1.7 \cdot 10^{15}$
Volume resistivity DC 1kV (Ohm.m)	$1.2 \cdot 10^{14}$
Corrected Dissipation Factor, Dielectric Constant IEC 60250	
D @ 1 kHz	0.029
k' @ 1 kHz	2.63
D @ 1 MHz	0.018
k' @ 1 MHz	2.35
DC breakdown voltage according to IEC 60243-2	44.5kV/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/mm^2 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)	10- 25 seconds
Steel (Mild Steel)	15 - 60 seconds
Aluminum (A5754)	15 - 25 seconds
Paper	5 - 10 seconds
EPDM	5 - 20 seconds
Rubber, nitrile	20 - 60 seconds
ABS	10 - 60 seconds
PVC	30- 70 seconds
Polycarbonate	20 - 70 seconds
Phenolic	20 - 60 seconds
PC/ABS	20 - 70 seconds
Wood (Pine)	40- 90 seconds
Chipboard	20 - 50 seconds
Leather	30- 80 seconds

*if stored in proper conditions

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BONDING PERFORMANCE

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

After 24h Curing at RT

Grit-Blasted Mild Steel (GBMS)	18	+/- 1	
Aluminum (A5754)	13	+/- 1	
ABS	6	+/- 1	SF*
PVC	7	+/- 1	SF*
Phenolic	11	+/- 1	SF*
Polycarbonate	3	+/- 1	SF*

@ 100mm/min after 24h Curing at RT

Nitrile	0.5	+/- 0.1	SF*
Neoprene	0.3	+/- 0.1	SF*

*Substrate failure

After 1 Week Curing at RT

Grit-Blasted Mild Steel (GBMS)	20	+/- 2

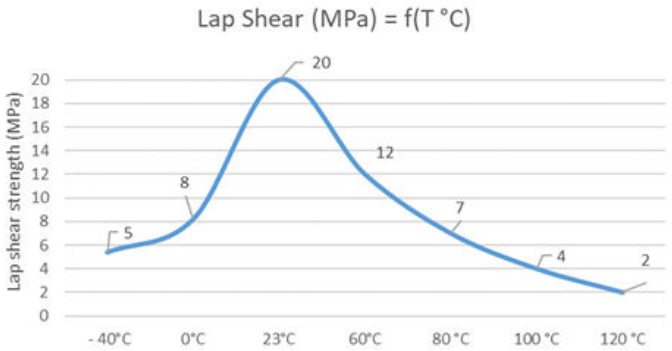
T-Peel Strength (ISO 11339) @ 23°C (73.4°F) (N/mm) @100mm/min

After 24 h curing @ RT

Mild steel	1.1	+/- 0.1

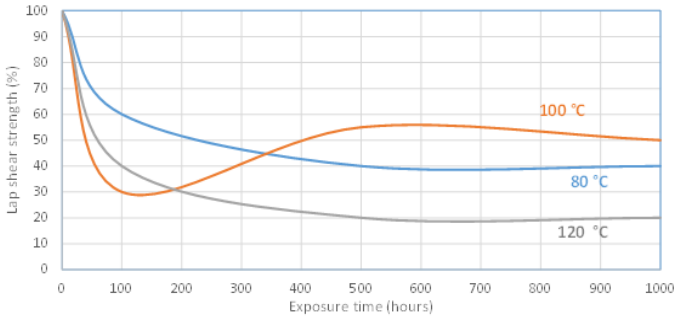
HOT STRENGTH

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 @ 23°C (73,4°F).

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

Testing on Grit-Blasted Mild Steel		% of Initial Strength		
ENVIRONMENT	TEMP	100 H	500 H	1000 H
Motor Oil	40°C (104°F)	70	70	55
Ethanol	23°C (73.4°F)	85	90	80
Gasoline	23°C (73.4°F)	80	95	75
IPA	23°C (73.4°F)	90	100	90
Water	60°C (140°F)	90	90	75

Testing on Aluminum - ABS		% of Initial Strength		
ENVIRONMENT	TEMP	100 H	500 H	1000 H
Water	60°C (140°F)	85	85	85

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 - 85% RH & 85°C (185°F)	100 H	500 H	1000 H
GBMS	70	70	20
Aluminum A5754	35	40	35

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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	130	125	125
Polycarbonate	110	120	150

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