Flex

FLEXO-ELASTIC, TWO-PART, INSTANT ADHESIVE

TECHNICAL DATA SHEET

Revised August 2019

PRODUCT DESCRIPTION

Born2Bond™ Flex is a flexible, elastic and low-odor, instant adhesive with exceptional adhesion to a very broad range of materials and surfaces. Born2Bond Flex has a curing time of only six minutes and becomes a polymer with more than 200% of elongation within 10 minutes. Its working times (in-mixer) can be up to six minutes. It can be used for high-volumetric gap filling, and achieves instant adhesion to most plastics, wood and metals and to porous and irregular surfaces. The gel consistency enables application in any orientation, while the static mixing nozzle ensures uniform and precise application for exceptional user convenience. Flex is ideal for joining parts that vibrate, flex or move relative to each other.

KEY FEATURES

- → Elongation >200%
- → Absorbs impact and vibrations
- → Bonds in 60 seconds
- → Cures in 6 - 10 minutes
- → Instant adhesion and high peel strength
- → Gap filling
- → Non-lachrymatory
- → Low odor and low blooming
- → Bonds a large range of substrates
- → Gel consistency for application in any orientation
- → Certified by NSF

DIRECTIONS FOR USE

1. Before applying Born2Bond Flex, 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 service load (typically 24 hours).

APPLICATIONS

Typical applications for this product are leather repair, sealing repair, elastic seam sealing, joint sealing, flexible bonding, sealing drafts, flooring and panel bonding, vibration dampening, strengthening parts, glass to rubber bonding for bus and train windows, and luxury clothing.

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 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.

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PRODUCT CHARACTERISTICS

Base Technology - Part A/B	Methoxyethyl cyanoacrylate (A) Plasticizer (B)
Components - 1k/2k	2k
Mix Ratio	4:1
Appearance/Color	Transparent
Gap Filling Capacity	1 cm (0.39in)
Temperature Use Range	-40°C to 80°C (-40°F to 176°F)
Open Time	6 - 10 mins
Mixer Life	6 - 10 mins (23°C / 73.4°F)
VOC Content - Part A (ISO 11890-2)	61 g/L
VOC Content - Part B (ISO 11890-2)	19 g/L

UNCURED PHYSICAL PROPERTIES

Viscosity at 25°C (77°F)* - Part A	120000 - 170000 cP @ 1.5 rpm 6000 - 9000 cP @ 50 rpm
Viscosity at 25°C (77°F)* - Part B	70000 - 130000 cP @ 1.5 rpm 3000 - 7000 cP @ 50 rpm
Specific Gravity (ASTM D1875: 23°C / 73.4°F)	1.12 g/mL (A) 1.10 g/mL (B)
Refractive Index, ABBE	1.48 - 1.50

*Based on Brookfield viscometer

CURED PHYSICAL PROPERTIES

Shore Hardness A (ISO 868-2003)	76
Tensile Strength (ISO 527)	2 MPa
Elastic Modulus (ISO 527)	2 MPa
Elongation at Break (ISO 527)	259%
Glass Transition Temperature (ISO 6721)	35°C (95°F)
Linear Shrinkage (ISO 10563)	9.2%
Water Absorption (after 24 hrs) (ASTM D-542)	11.3%
Impact Resistance (after 24 hrs) (ISO 9653)	21.0 kJ/m^2
Electrical Properties of Resistivity IEC 60093	
Surface resistivity DC 500 V (Ohm)	$3.7 \cdot 10^{14}$
Volume resistivity DC 1kV (Ohm.m)	$3.2 \cdot 10^{10}$

Corrected Dissipation Factor, Dielectric Constant IEC 60250	
D @ 1 kHz	0.06
k' @ 1 kHz	3.55
D @ 1 MHz	0.03
k' @ 1 MHz	2.87
DC breakdown voltage according to IEC 60243-2	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/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/mm)	
Stainless Steel (A316)	60 - 90 seconds
Steel (Mild Steel)	30 - 50 seconds
Aluminum (A5754)	60 - 120 seconds
Neoprene	60 - 90 seconds
EPDM	45 - 75 seconds
Rubber, nitrile	30 - 60 seconds
ABS	45 - 75 seconds
PVC	15 - 80 seconds
Polycarbonate	60 - 90 seconds
Phenolic	115 - 140 seconds
Wood (Oak)	150 - 210 seconds
Wood (Pine)	130 - 180 seconds
Chipboard	45 - 60 seconds
Leather	50 - 70 seconds
PC/ABS	60 - 90 seconds
Paper	60 - 90 seconds

*if stored in proper conditions

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BONDING PERFORMANCE

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

after 24 hours curing @ RT			
Grit-Blasted Mild Steel (GBMS)	10	+/- 2	
Aluminum (A5754)	5	+/- 1	
ABS	6	+/- 1	SF
PVC	2	+/- 1	
Phenolic	4	+/- 1	
Polycarbonate	5	+/- 1	SF

@ 100mm/min after 24h Curing at RT		
Nitrile	0.4	+/- 0.5
Neoprene	0.3	+/- 0.5

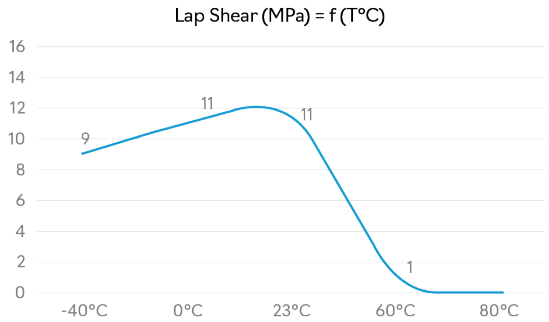
@ 2 mm/min after 1 week Curing at RT		
Grit-Blasted Mild Steel (GBMS)	11	+/- 1

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

@ 100mm/min after 24 h curing @ RT		
Mild Steel	1	+/- 0.3

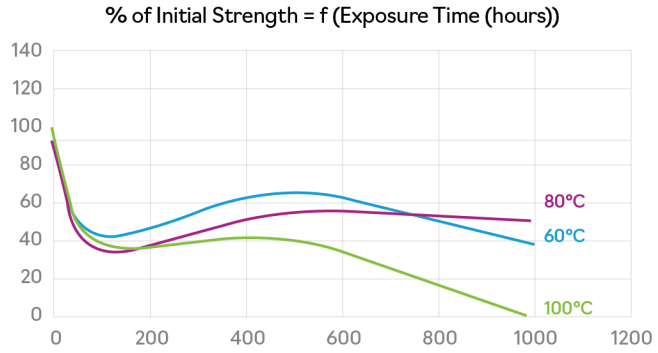
TYPICAL ENVIRONMENTAL RESISTANCE

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.



HOT STRENGTH

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 GMBS		% of Initial Strength		
ENVIRONMENT	TEMP	100 H	500 H	1000 H
Motor Oil	40°C (104°F)	48	49	62
Ethanol	23°C (73.4°F)	40	26	1
Gasoline	23°C (73.4°F)	27	51	42
IPA	23°C (73.4°F)	25	37	39
Water	23°C (73.4°F)	30	9	0

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	5	0	0
Polycarbonate	51	52	80

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