

AFINITICA® ADHESIVE WELDING

PRODUCT DESCRIPTION

Technology	Cyanoacrylate
Chemical Type	Ethyl Cyanoacrylate
Appearance (uncured comp. A)	Transparent gel
Appearance (uncured comp. B)	Transparent gel
Components	Two-part – requires mixing
Viscosity	High, thixotropic gel
Cure	By mixing

AFINITICA® Adhesive Welding is a gap filling instant adhesive with excellent bonding properties to a very broad range of materials and surfaces. This two-component formulation has longer open (on-part) and working (in-mixer) times than traditional epoxy two-component formulations. Working times up to 90 minutes, open times up to 30 minutes, gap filling up to 5 mm, instant adhesion to plastics, wood and metals (including aluminium) and to porous and irregular surfaces, make this product the adhesive of choice for professional and DIY users. The gel consistency facilitates working in any orientation whilst the static mixing nozzle ensures uniformity and precise application for exceptional user convenience

TYPICAL PROPERTIES OF UNCURED MATERIAL

PART A:

Specific gravity, 25 °C, g/cm³: 1.15
 Viscosity, Brookfield, 25 °C, mPa·s (cP):
 Spindle 14, speed 1.5 rpm 100,000 to 190,000

PART B:

Specific gravity, 25 °C, g/cm³: 1.25
 Viscosity, Brookfield, 25 °C, mPa·s (cP):
 Spindle 14, speed 1.5 rpm 80,000 to 110,000

MIXED A and B:

Open time at 25 °C: 20 – 65 minutes
 Working time at 25 °C (in the static mixer):
 35 – 70 minutes (up to 120 minutes)
 Glass Transition Temperature (T_g, °C): 83.7
 Shore D Hardness: 60

TYPICAL CURING PERFORMANCE

Under normal conditions, the atmospheric moisture initiates the curing process. Although full functional strength is developed in a relatively short time, curing continues for at least 24 hours before full chemical resistance is developed.

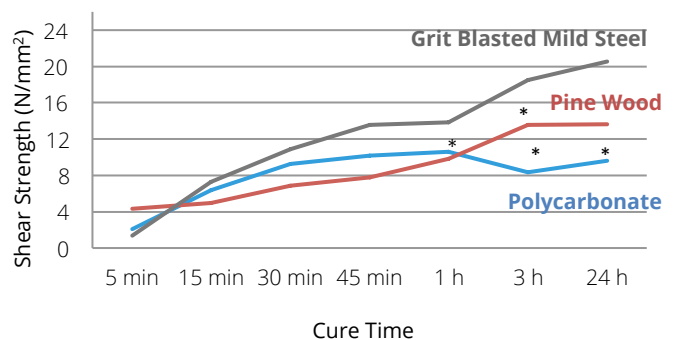
FIXTURE TIMES

Fixture time is the time at which an adhesive bond (250 mm²) is capable of supporting a 3 kg load for 10 seconds. The fixture time will depend on the substrate. The table below shows the fixture time for different substrates using lap shears.

	Time (s)
Pine Wood	45 – 120
Beech Wood	15 – 150
ABS	45 – 75
Polycarbonate	45 – 90
Aluminium A5754	60 – 150
Mild steel	10 – 90

CURE SPEED vs. SUBSTRATE

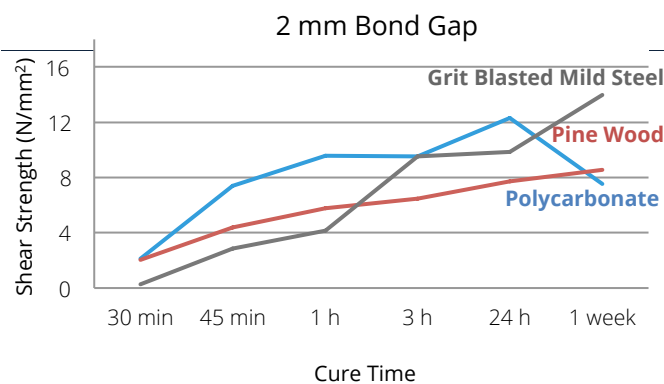
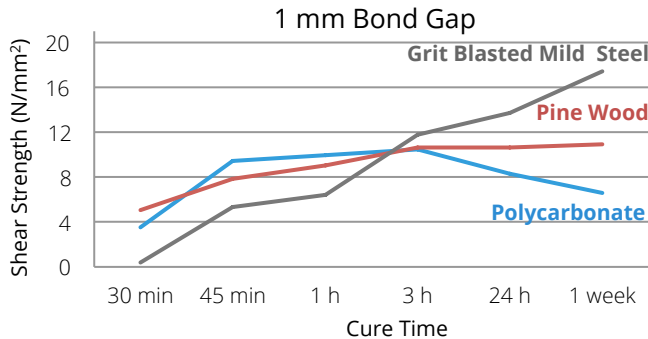
The rate and strength of cure will depend on the substrate used. The graph below shows the tensile shear strength developed with time on different materials and tested according to ISO 4587.



* Substrate Failure

TENSILE SHEAR STRENGTH vs. BOND GAP

The rate and strength of cure will depend on the bondline thickness. The following graph shows the tensile shear strength developed as a function of time on Grit Blasted Mild Steel, Pine Wood and Polycarbonate lap shears as a function of bondline thickness and tested according to test method ISO 4587.



TYPICAL PERFORMANCE OF CURED MATERIAL

TENSILE SHEAR STRENGTH

The shear strength will depend on the substrate. The Table below shows the shear strength for different substrates using lap shears according to ISO 4587.

Cured for 24h at 22 °C

	Strength (N/mm ²)
Pine Wood	5 - 14*
Beech Wood	6 - 14*
ABS	7 - 10*
Polycarbonate	8 - 10*
Aluminium A5754	5 - 10
Mild steel	14 - 18

* Substrate Failure

TYPICAL ENVIRONMENTAL RESISTANCE

GENERAL INFORMATION

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. For safe handling information on this product, consult the Safety Data Sheet (SDS): Part A SDS242901 and part B SDS242902.

Directions for use:

- 1) Before applying the glue, make sure the gluing surface is clean, dry and free of grease.
- 2) To assemble the syringe, first introduce the plunger, then exchange the cap with a mixer. Discard the first few drops.
- 3) Apply the material on one of the two surfaces and assemble the two parts within 15 minutes.
- 4) After uniting the substrates, 15-30 seconds are available for repositioning depending on the substrate. Press the two parts together firmly for around 30 seconds. After releasing the pressure, wait 10 minutes before good handling strength and 24h for full strength.
- 5) Make use of the syringe or discard product at least every 30 minutes to avoid the product from polymerizing inside the mixer, if you do not want to replace the mixer.
- 6) After use, discard the mixer and replace the cap. Store the syringe in a cool and dry environment.
- 7) Optimal Storage: 2 °C to 8 °C. Storage below 2 °C or greater than 8 °C can adversely affect product properties
- 8) Product shelf-life: 12 months

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

NOTE

The data contained herein are furnished for information only and are believed to be reliable. AFINITICA cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production

methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, AFINITICA Technologies s.l. specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of AFINITICA's products. AFINITICA specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits. The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any AFINITICA Technologies patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.