AFINITICA® ADHESIVE WELDING METAL

PRODUCT DESCRIPTION

Technology	Cyanoacrylate
Chemical Type	Ethyl Cyanoacrylate
Appearance (Comp. A)	Clear gel
Appearance (Comp. B)	Grey gel
Appearance of Mix	Grey gel
Components	Two component – requires mixing
Viscosity	Thixotropic gel
Cure	By mixing

AFINITICA® Adhesive Welding Metal is a gap filling instant adhesive with excellent bonding properties to a very broad range of materials and surfaces. This two-component formulation has been formulated to optimise bond strength on metal substrates, particularly aluminium. Aside from superior bonding to metal substrates, this product has excellent bonding properties to many other substrates – such as wood, plastic or glass. Working times (in-mixer) up to 120 minutes, open times (on-part) up to 40 minutes, gap filling up to 5 mm, instant adhesion to most plastics, wood and especially metals in addition to porous and irregular substrates are some of the features of this product. The gel consistency allows application in any orientation whilst the static mixing nozzle ensures uniform and precise application for exceptional user convenience.

TYPICAL PROPERTIES OF UNCURED MATERIAL

PART A:

Specific gravity, 25 °C, g/cm^3: 1.07
Viscosity, 25 °C, mPa·s (cP):
Spindle 14, speed 1.5 rpm: 100,000 – 200,000
Viscosity, 25 °C, mPa·s (cP):
Spindle 14, speed 10 rpm: 20,000 – 35,000

PART B:

Specific gravity, 25 °C, g/cm^3: 1.17
Viscosity, 25 °C, mPa·s (cP):
Spindle 14, speed 1.5 rpm 60,000 – 120,000
Viscosity, 25 °C, mPa·s (cP):
Spindle 14, speed 10 rpm 15,000 – 35,000

MIXED:

Open time at 25 °C: 35 – 40 minutes
Working time at 25 °C (in the static mixer):
45 minutes (up to 120 minutes)

TYPICAL CURING PERFORMANCE

Curing is initiated by mixing the Part A and Part B components. Handling strength is achieved rapidly; full strength is achieved within 24 hours.

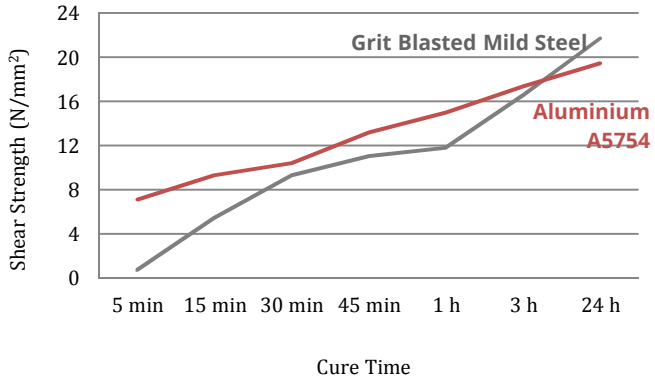
FIXTURE TIMES

Fixture time is the time at which an adhesive bond (250 mm^2) 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)
Beech Wood	30 – 60
ABS	60 – 75
Aluminium A5754	60 – 210
Aluminium A5083	60 – 90
Aluminium A6082	60 – 210
Mild Steel	15 – 45

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.



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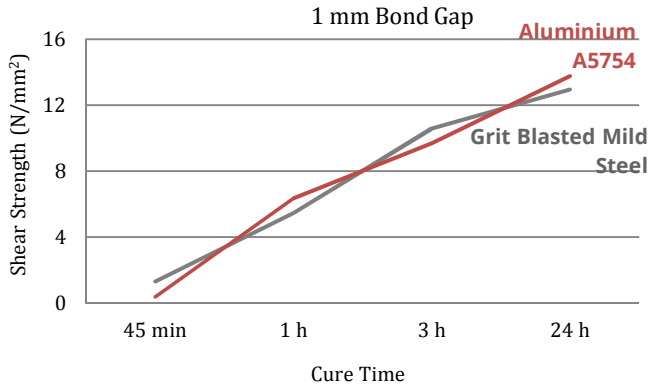
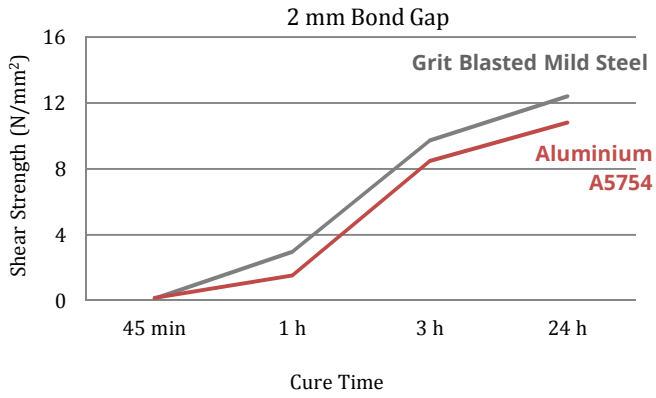
TENSILE SHEAR STRENGTH *vs.* BOND GAP

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





TYPICAL PERFORMANCE OF CURED MATERIAL

TENSILE SHEAR STRENGTH

The tensile 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 22ºC

	Strength (N/mm²)
Beech Wood	9 – 15
ABS	9 – 11*
Aluminium A5754	13 – 19
Aluminium A5083	16 – 20
Aluminium A6082	15 – 22
Mild Steel	15 – 21

* Substrate Failure

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 (242905) and Part B (242906)

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 20 minutes before good handling strength and 24h for full strength.
5) Make use of the syringe or discard product at least every 40 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 ºC to 8 ºC. Storage below 2 ºC or greater than 8 ºC can adversely affect product properties.
8) Product shelf-life: 12 months

Conversions:

(ºC x 1.8) + 32 = ºF
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

NOTE

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