

# HiGluE 480

## PRODUCT DESCRIPTION

HiGluE 480 provides the following product characteristics:

<b>Technology</b>	Cyanoacrylate
<b>Chemical Type</b>	Ethyl cyanoacrylate
<b>Appearance (uncured)</b>	Black liquid <sup>LMS</sup>
<b>Components</b>	One part - requires no mixing
<b>Viscosity</b>	Low
<b>Cure</b>	Humidity
<b>Application</b>	Bonding
<b>Key Substrates</b>	Metals , Plastics and Rubbers

HiGluE 480 is a rubber toughened adhesive with increased flexibility and peel strength along with enhanced resistance to shock.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.05
Flash Point - See SDS	
Viscosity, Cone & Plate, mPa·s (cP): Temperature: 25 °C, Shear Rate: 1,000 s <sup>-1</sup>	100 to 200 <sup>LMS</sup>
Viscosity, Brookfield - LVF, 25 °C, mPa·s (cP): Spindle 1, speed 6 rpm	100 to 200

## 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/solvent resistance is developed.

### Cure Speed vs. Substrate

The rate of cure will depend on the substrate used. The table below shows the fixture time achieved on different materials at 22 °C / 50 % relative humidity. This is defined as the time to develop a shear strength of 0.1 N/mm<sup>2</sup>.

Fixture Time, seconds:	
Steel (degreased)	60 to 120
Aluminum	10 to 30
Zinc dichromate	50 to 150
Neoprene	<20
Rubber, nitrile	<20
ABS	20 to 50
PVC	50 to 100
Polycarbonate	30 to 90
Phenolic	20 to 60

### Cure Speed vs. Bond Gap

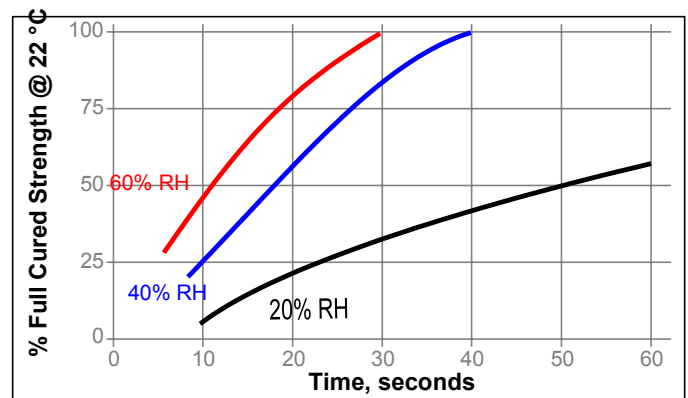
The rate of cure will depend on the bondline gap. Thin bond lines result in high cure speeds, increasing the bond gap will decrease the rate of cure.

### Cure Speed vs. Activator

Where cure speed is unacceptably long due to large gaps, applying activator to the surface will improve cure speed. However, this can reduce ultimate strength of the bond and therefore testing is recommended to confirm effect.

### Cure Speed vs. Humidity

The rate of cure will depend on the ambient relative humidity. The following graph shows the tensile strength developed with time on Buna N rubber at different levels of humidity.



## TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 24 hours @ 22 °C

### Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K <sup>-1</sup>	80×10 <sup>-6</sup>
Coefficient of Thermal Conductivity ISO 8302, 0.1 W/(m·K)	
Glass Transition Temperature, ISO 11359-2, °C	150

### Electrical Properties:

Volume Resistivity, IEC 60093, Ω·cm	10×10 <sup>15</sup>
Surface Resistivity, IEC 60093, Ω	10×10 <sup>15</sup>
Dielectric Breakdown Strength, IEC 60243-1, kV/mm	25
Dielectric Constant / Dissipation Factor, IEC 60250:	
0.1 kHz	2.65 / <0.02
1 kHz	2.75 / <0.02
10 kHz	2.75 / <0.02

## TYPICAL PERFORMANCE OF CURED MATERIAL

### Adhesive Properties

Cured for 30 seconds @ 22 °C

Tensile Strength, ISO 6922:

Buna-N

N/mm<sup>2</sup> ≥1.8<sup>LMS</sup>  
(psi) (≥260)

Cured for 24 hours @ 22 °C

Lap Shear Strength, ISO 4587:

Steel (grit blasted)

N/mm<sup>2</sup> 22 to 30  
(psi) (3,200 to 4,400)

Aluminum (etched)

N/mm<sup>2</sup> 14 to 22  
(psi) (2,000 to 3,200)

Zinc dichromate

N/mm<sup>2</sup> 8 to 15  
(psi) (1,200 to 2,200)

ABS

N/mm<sup>2</sup> 6 to 20  
(psi) (870 to 2,900)

PVC

N/mm<sup>2</sup> 4 to 20  
(psi) (580 to 2,900)

Phenolic

N/mm<sup>2</sup> 5 to 15  
(psi) (730 to 2,200)

Polycarbonate

N/mm<sup>2</sup> 5 to 20  
(psi) (730 to 2,900)

Nitrile

N/mm<sup>2</sup> 5 to 15  
(psi) (730 to 2,200)

Neoprene

N/mm<sup>2</sup> 5 to 15  
(psi) (730 to 2,200)

Tensile Strength, ISO 6922:

Steel (grit blasted)

N/mm<sup>2</sup> 12 to 25  
(psi) (1,700 to 3,600)

Buna-N

N/mm<sup>2</sup> 5 to 15  
(psi) (730 to 2,200)

Cured for 24 hours @ 22 °C, followed by 48 hours @ 120 °C, tested @ 22 °C

Lap Shear Strength, ISO 4587:

Steel (grit blasted)

N/mm<sup>2</sup> ≥18.0<sup>LMS</sup>  
(psi) (≥2,610)

## TYPICAL ENVIRONMENTAL RESISTANCE

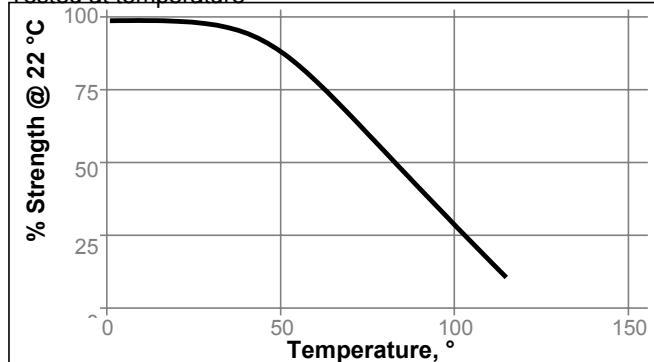
Cured for 1 week @ 22 °C

Lap Shear Strength, ISO 4587:

Steel (grit blasted)

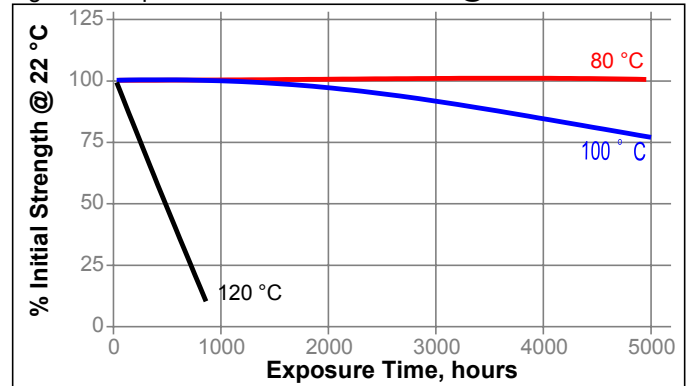
## Hot Strength

Tested at temperature



## Heat Aging

Aged at temperature indicated and tested @ 22 °C



## Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C.

Environment	°C	% of initial strength		
		100 h	500 h	1000 h
Motor oil	40	85	85	85
Gasoline	22	90	70	70
Ethanol	22	95	95	80
Isopropanol	22	75	75	75
Freon TA	22	90	90	85
Heat/humidity 95% RH	40	80	80	65

Lap Shear Strength, ISO 4587:

Polycarbonate

Environment	°C	% of initial strength		
		100 h	500 h	1000 h
Heat/humidity 95% RH	40	100	100	100

## 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).

## Directions for use:

1. For best performance bond surfaces should be clean and free from grease.
2. This product performs best in thin bond gaps (0.05 mm).
3. Excess adhesive can be dissolved with Higlue cleanup solvents, nitromethane or acetone.