

3090 Two Component Gel



Product Description

LOCTITE® 3090™ provides the following product characteristics:

Technology	Cyanoacrylate
Chemical Type	Ethyl cyanoacrylate
Appearance (comp A)	Clear to slightly cloudy gel ^{LMS}
Appearance (comp B)	Transparent colorless liquid
Appearance (mixture)	Clear to slightly cloudy gel
Components	Two components – requires mixing
Viscosity	Thixotropic gel
Cure	Two component cure after mixing
Application	Bonding

LOCTITE® 3090™ is a two component, fast curing, gap filling adhesive with excellent bonding characteristics to a variety of substrates including plastics, rubbers and metals. LOCTITE® 3090™ is designed for the assembly of parts with varying or undefined bond gaps up to 5 mm (0.2 in), or for applications where complete cure of excess adhesive is a requirement. The gel consistency prevents adhesive flow even on vertical surfaces. LOCTITE® 3090™ is also suited for bonding porous materials such as wood, paper, leather and fabric.

Typical Properties of Uncured Material

Part A:

Specific gravity @ +25°C: 1.1
Flash point: see SDS
Casson viscosity, +25°C, mPa·s (cP):
cone and plate rheometer 150 to 450^{LMS}

Part B:

Casson viscosity, +25°C, mPa·s (cP):
cone and plate rheometer 10 to 30
Flash point: see SDS

Mixed:

Open time @ +25°C, seconds: 90 to 180

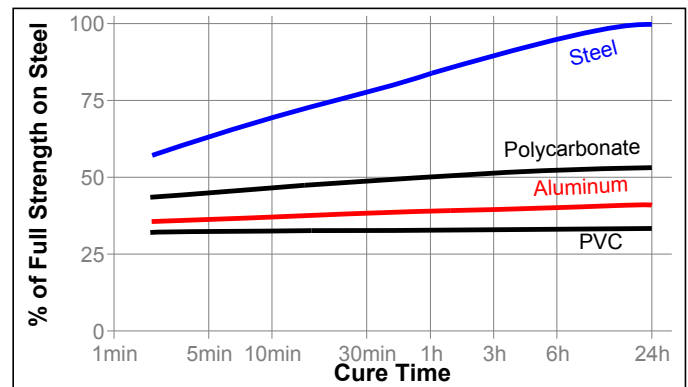


Typical Curing Performance

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

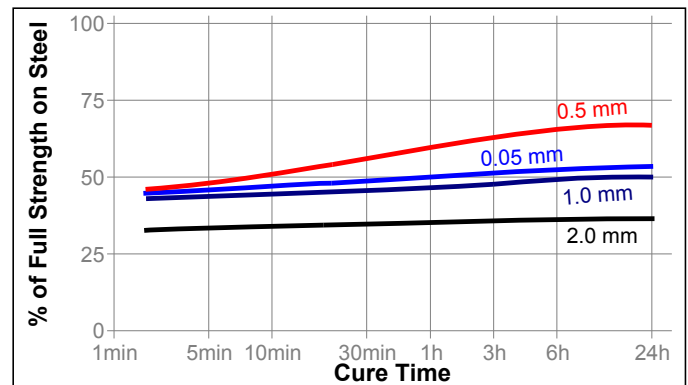
Cure Speed vs Substrate

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



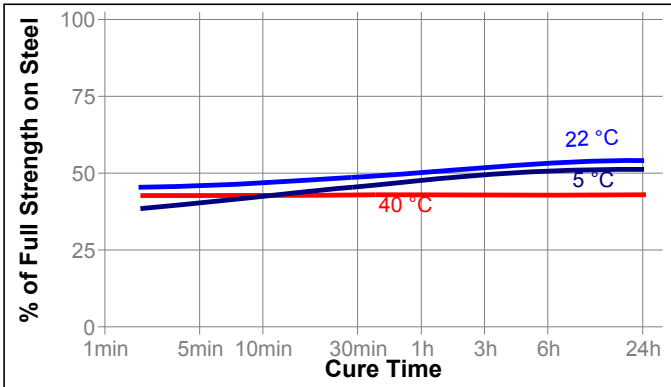
Cure Speed vs Bond Gap

The rate of cure will depend on the bond line gap. The following graph shows the shear strength developed with time on polycarbonate lap shears at different controlled gaps and tested according to ISO 4587.



Cure Speed vs Temperature

The rate of cure will depend on the ambient temperature. The graph below shows the shear strength developed with time at different temperatures on polycarbonate lap shears and tested according to ISO 4587.



Typical Properties of Cured Material

Physical Properties:

Cured for 1 week @ +22°C		
Glass transition temperature ISO 11359-2	+116°C	
Shore hardness, ISO 868, durometer D	79	
ISO 527-3	N/mm ²	psi
Tensile strength, at break	28	4,060
Tensile strength, at yield	28	4,060
Tensile modulus	1,870	271,150
Elongation, at break	2.5%	
Elongation, at yield	2.5%	
ISO 11359-2	K ⁻¹	
Coefficient of Thermal Expansion	110×10 ⁻⁶	
ISO 8302	W/(m·K)	
Coefficient of thermal conductivity	0.35	

Electrical Properties:

Cured for 1 week @ +22°C	
IEC 60093	Ω·cm
Volume resistivity	250×10 ¹⁵
IEC 60093	Ω
Surface resistivity	400×10 ¹⁵

Typical Performance of Cured Material

Adhesive Properties:

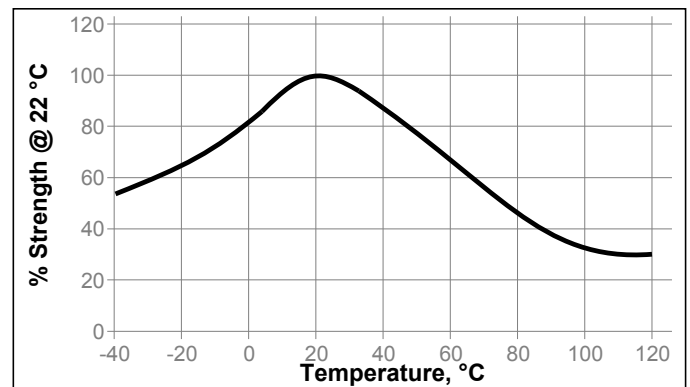
Cured for 30 seconds @ +22°C		
ISO 6922	N/mm ²	psi
Tensile strength, Buna-N (Part A only)	≥6 ^{LMS}	≥870
Cured for 24 hours @ +22°C		
Lap Shear Strength, ISO 4587	N/mm ²	psi
Steel (grit blasted)	21	3,045
Aluminium (etched)	9	1,300
Zinc dichromate	9	1,300
ABS	8	1,200
PVC	8	1,200
Phenolic	2	290
Polycarbonate	12	1,740
GRP	4	580
Nitrile	1	145
Neoprene	1	145
Wood (oak)	11	1,600
Wood (pine)	11	1,600
Wood (chipboard)	1.5	220
Leather	2	290

Typical Environmental Resistance

Cured for 1 week @ +22°C	
Lap Shear Strength, ISO 4587	Steel (grit blasted)

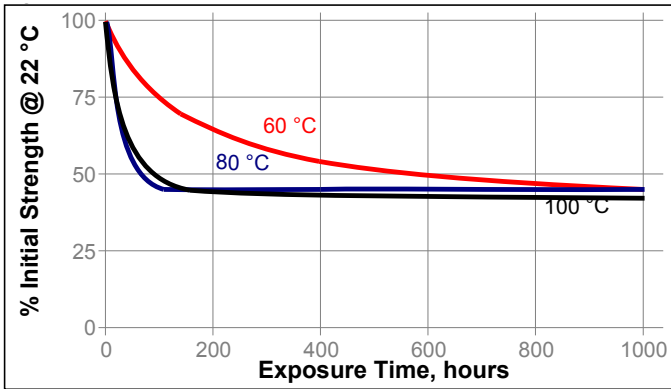
Hot Strength

Tested at temperature.



Hot Strength

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	5000 h
Water	22	80	70	60	50
Motor oil	40	85	80	70	65
Unleaded gasoline	22	95	90	80	70
Ethanol	22	90	90	90	80
Isopropanol	22	95	95	95	95
98% RH	40	45	30	30	5

Lap shear strength, ISO 4587: polycarbonate.

Environment	°C	% of initial strength			
		100 h	500 h	1000 h	5000 h
Water	22	100	95	95	95
Water	60	90	70	70	60
98% RH	40	95	90	80	75

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:

- Bond areas should be clean and free from grease. Clean all surfaces with a LOCTITE® cleaning solvent and allow to dry.
- To use, Part A and Part B must be blended. Product can be applied directly from dual cartridge by dispensing through the mixer head supplied. Discard the first 1 to 2cm of bead dispensed.
- Apply mixed adhesive to one of the bond surfaces. Do not use items like tissue or a brush to spread the adhesive. Assemble the parts within a few seconds. The parts should be accurately located, as the short fixture time leaves little opportunity for adjustment.
- Bonds should be held fixed or clamped until adhesive has fixtured.
- Product should be allowed to develop full strength before subjecting to any service loads (typically 24 hours after assembly).

Loctite Material Specification^{LMS}

LMS dated February-12, 2010. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labelling.

Optimal Storage: +2°C to +8°C.

Storage below +2°C or greater than +8°C can adversely affect product properties.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Centre or Customer Service Representative.