Technical Data Sheet

LOCTITE® 3090™

September 2012

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 component - 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:

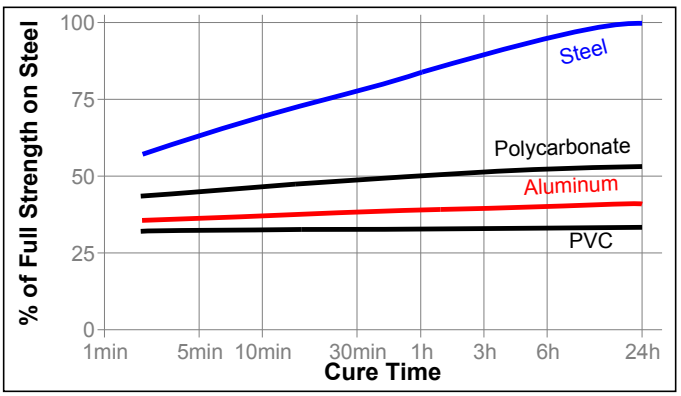
Open Time @ 25 °C, seconds	90 to 180

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.

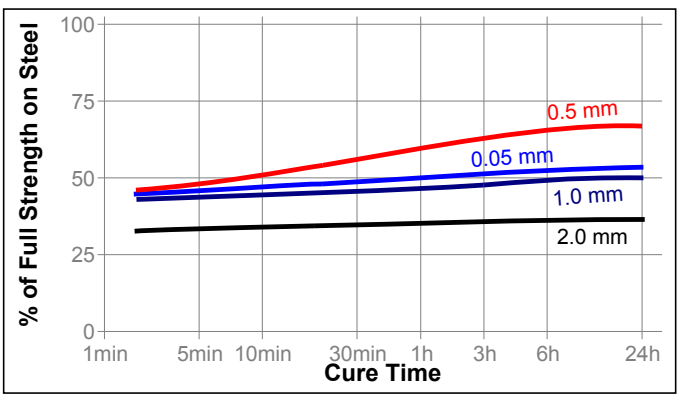
Cure Speed vs. Substrate

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.



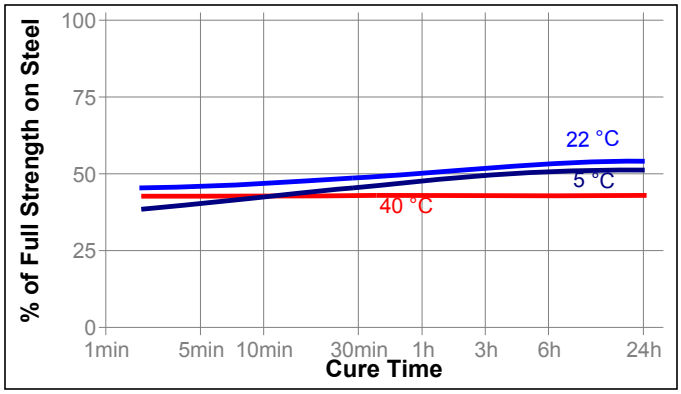
Cure Speed vs. Bond Gap

The rate of cure will depend on the bondline 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

Cured for 1 week @ 22 °C

Physical Properties:

Glass Transition Temperature ISO 11359-2, °C		116
Shore Hardness, ISO 868, Durometer D		79
Tensile Strength, at break, ISO 527-3	N/mm²	28
	(psi)	(4,060)
Tensile Strength, at yield, ISO 527-3	N/mm²	28
	(psi)	(4,060)
Tensile Modulus, ISO 527-3	N/mm²	1,870
	(psi)	(271,150)
Elongation, at break, ISO 527-3, %		2.5
Elongation, at yield, ISO 527-3, %		2.5
Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}		110×10^{-6}
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)		0.35

Electrical Properties:

Volume Resistivity, IEC 60093, Ω·cm	250×10^{15}
Surface Resistivity, IEC 60093, Ω	400×10^{15}

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 30 seconds @ 22 °C

Tensile Strength, ISO 6922:

Buna-N(Part A only)	N/mm²	≥6[LMS]
	(psi)	(≥870)

Cured for 24 hours @ 22 °C

Lap Shear Strength, ISO 4587:

Steel (grit blasted)	N/mm²	21
	(psi)	(3,045)
Aluminum (etched)	N/mm²	9
	(psi)	(1,300)
Zinc dichromate	N/mm²	9
	(psi)	(1,300)
ABS	* N/mm²	8
	* (psi)	(1,200)
PVC	N/mm²	8
	(psi)	(1,200)
Phenolic	N/mm²	2
	(psi)	(290)
Polycarbonate	* N/mm²	12
	* (psi)	(1,740)
GRP	N/mm²	4
	(psi)	(580)
Nitrile	N/mm²	1
	(psi)	(145)
Neoprene	N/mm²	1
	(psi)	(145)
Wood (Oak)	N/mm²	11
	(psi)	(1,600)
Wood (Pine)	N/mm²	11
	(psi)	(1,600)
Wood (Chipboard)	N/mm²	1.5
	(psi)	(220)
Leather	N/mm²	2
	(psi)	(290)

* substrate failure

TYPICAL ENVIRONMENTAL RESISTANCE

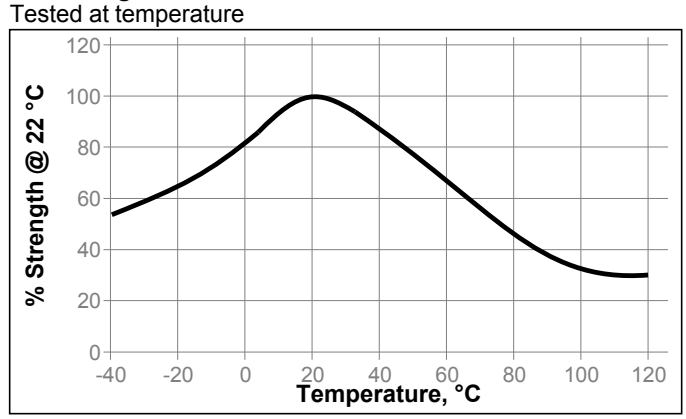
Cured for 1 week @ 22 °C

Lap Shear Strength, ISO 4587:

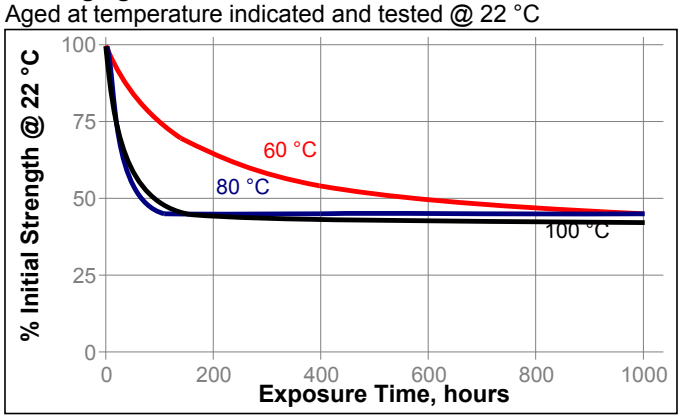
Steel (grit blasted)

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.

		% of initial strength			
Environment	**°C**	**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

		% of initial strength			
Environment	**°C**	**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:

1. Bond areas should be clean and free from grease. Clean all surfaces with a Loctite® cleaning solvent and allow to dry.
2. 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 2 cm of bead dispensed.
3. 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.
4. Bonds should be held fixed or clamped until adhesive has fixtured.
5. 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 labeling.
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 Center or Customer Service Representative.

Conversions
(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
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·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Note:
The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.
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Reference 0.1