LOCTITE

LOCTITE® 382™

October 2008

PRODUCT DESCRIPTION

LOCTITE® 382™ provides the following product characteristics:

Technology	Cyanoacrylate
Chemical Type	Ethyl cyanoacrylate
Appearance (uncured)	Water white to slightly cloudy gel[LMS]
Components	One part - requires no mixing
Viscosity	High
Cure	Humidity
Application	Bonding
Key Substrates	Rubbers, Plastics and Metals

LOCTITE® 382™ is a single part, fast curing high viscosity cyanoacrylate adhesive formulated for electronics applications. LOCTITE® 382™ is designed to use with TAK PAK® Accelerators to attain instant cures for tacking electronics components . Typical applications include wire tacking to coil forms; tamper proofing adjustable components; mounting standoffs, edge guides and stiffeners to circuit boards.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.05
Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):	
Spindle TC, speed 20 rpm, Helipath	4,000 to 8,000[LMS]
Flash Point - See MSDS	

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/mm² .

Fixture Time, seconds:	
Steel (degreased)	20 to 50
Aluminum	10 to 30
Neoprene	<5
Rubber, nitrile	<5
ABS	15 to 40
PVC	20 to 50
Polycarbonate	30 to 70
Phenolic	10 to 40

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.

TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 24 hours @ 22 °C

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K^{-1}	80×10^{-6}
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)	0.1
Glass Transition Temperature, ASTM E 228, °C	120

Electrical Properties:

Dielectric Constant / Dissipation Factor, IEC 60250:	
0.05 kHz	2.3 / <0.02
1 kHz	2.3 / <0.02
1,000 kHz	2.3 / <0.02
Volume Resistivity, IEC 60093, Ω·cm	10×10^{15}
Dielectric Breakdown Strength, IEC 60243-1, kV/mm	25

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 30 seconds @ 22 °C

Tensile Strength, ISO 6922:		
Buna-N	N/mm²	≥7.0[LMS]
	(psi)	(≥1,015)

Cured for 2 minutes @ 22 °C, 0.05 mm gap

Lap Shear Strength, ISO 4587:		
Steel (grit blasted)	N/mm²	≥5.2[LMS]
	(psi)	(≥754)

Cured for 24 hours @ 22 °C

Lap Shear Strength, ISO 4587:		
Steel (grit blasted)	N/mm²	18 to 26
	(psi)	(2,610 to 3,770)
Aluminum (etched)	N/mm²	11 to 19
	(psi)	(1,595 to 2,755)
ABS	N/mm²	>6
	(psi)	(>870)
PVC	N/mm²	>6
	(psi)	(>870)
Polycarbonate	N/mm²	>5
	(psi)	(>725)
Phenolic	N/mm²	5 to 15
	(psi)	(725 to 2,175)
Neoprene	N/mm²	>10
	(psi)	(>1,450)
Nitrile	N/mm²	>10
	(psi)	(>1,450)
Tensile Strength, ISO 6922:		
Steel (grit blasted)	N/mm²	12 to 25
	(psi)	(1,740 to 3,625)

Cured for 24 hours @ 22 °C, followed by 24 hours @ 121 °C, tested @ 121 °C

Lap Shear Strength, ISO 4587:		
Steel (grit blasted)	N/mm²	≥8.3[LMS]
	(psi)	(≥1,203)

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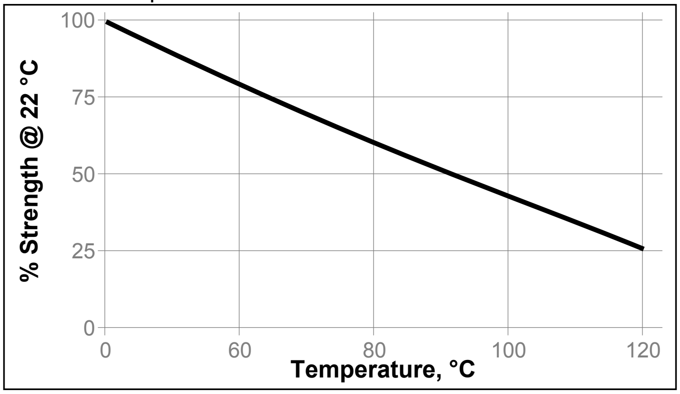
TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 1 week @ 22 °C
Lap Shear Strength, ISO 4587:
Mild steel (grit blasted)

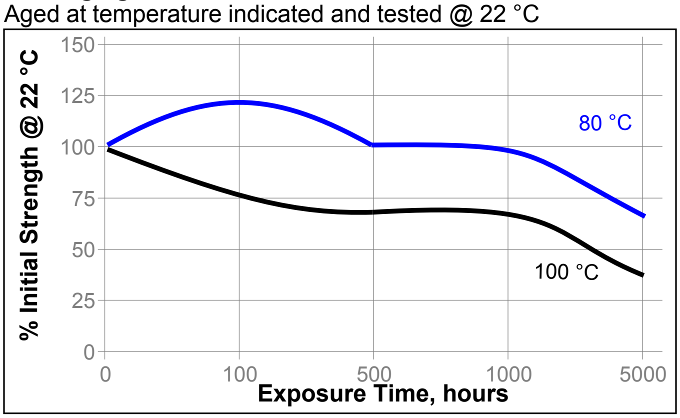
Hot Strength

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**
Motor oil	40	100	100	95
Gasoline	22	100	100	100
Isopropanol	22	100	100	100
Industrial methylated spirits	22	100	100	100
1,1,1 Trichloroethane	22	100	100	100
Freon TA	22	100	100	100
Heat/humidity 95% RH	40	100	100	95

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 Material Safety Data Sheet (MSDS).

Directions for use:

1. Apply one coating of TAK PAK® accelerator to the area to be bonded, by spray, brush or dipping. Prior to application, contaminated surfaces may need special cleaning or degreasing to remove any dissolvable contamination.

   NOTE: Because the solvent base of TAK PAK® accelerators can affect certain plastics or coatings, checking all surfaces for compatibility is recommended.

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2. Allow the accelerator time to evaporate under good ventilation until the surfaces are completely dry (approx. 15 to 30 seconds)..
3. Apply LOCTITE® 382™ cyanoacrylate product immediately after solvent has dried.

   NOTE: If cyanoacrylate is not applied to the accelerator within 45 seconds, accelerator should be reapplied

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4. Where possible, move surfaces in relation to each other for a few seconds on assembly to properly distribute the adhesive and for maximum activation..
5. Secure the assembly and await fixturing before any further handling..

Loctite Material Specification^LMS

LMS dated November 21, 2002. 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

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Reference 2.1