



# LOCTITE® 382

May 2004

## PRODUCT DESCRIPTION

LOCTITE® 382 provides the following product characteristics:

<b>Technology</b>	Cyanoacrylate
<b>Chemical Type</b>	Ethyl cyanoacrylate
<b>Appearance (uncured)</b>	Clear to slightly cloudy, colorless to straw colored gel <sup>LMS</sup>
<b>Components</b>	One part - requires no mixing
<b>Viscosity</b>	High
<b>Cure</b>	Humidity
<b>Application</b>	Bonding
<b>Key Substrates</b>	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 <sup>LMS</sup>
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/mm<sup>2</sup>.

Fixture Time, ISO 4587, 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

After 24 hours @ 22 °C

### Physical Properties:

Coefficient of Thermal Expansion, ASTM D 696, K <sup>-1</sup>	80×10 <sup>-6</sup>
Coefficient of Thermal Conductivity, ASTM C 177, W/(m·K)	0.10
Glass Transition Temperature, ASTM E 228, °C	120

### Electrical Properties:

Dielectric Constant / Dissipation Factor, ASTM D 150:	
0.05 kHz	2.30 / <0.02
1 kHz	2.30 / <0.02
1,000 kHz	2.30 / <0.02
Volume Resistivity, ASTM D 257, Ω·cm	10×10 <sup>15</sup>
Dielectric Breakdown Strength, ASTM D 149, kV/mm	25

## TYPICAL PERFORMANCE OF CURED MATERIAL

### Adhesive Properties

Cured for 24 hours @ 22 °C

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

Tensile Strength, ISO 6922:

Steel (grit blasted)	N/mm <sup>2</sup> 12 to 25 (psi) (1,740 to 3,625)
----------------------	------------------------------------------------------

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

Lap Shear Strength, ISO 4587:	
Steel (grit blasted)	N/mm <sup>2</sup> ≥8 <sup>LMS</sup> (psi) (≥1,160)

Cured for 30 seconds @ 22 °C

Tensile Strength, ISO 6922:	
Buna-N	N/mm <sup>2</sup> ≥6 <sup>LMS</sup> (psi) (≥870)

**TYPICAL ENVIRONMENTAL RESISTANCE**

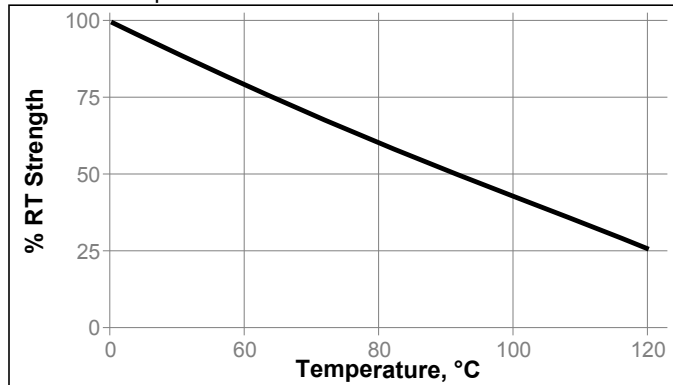
After 1 week @ 22 °C

Lap Shear Strength, ISO 4587:

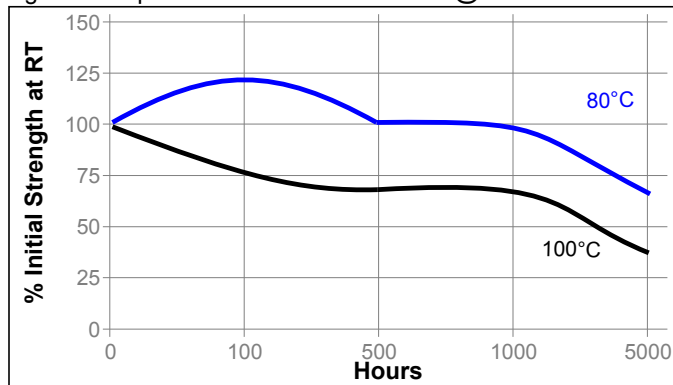
Mild steel (grit blasted)

**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.

Environment	°C	% of initial strength		
		100 hr	500 hr	1000 hr
Motor Oil	40	100	100	95
Gasoline	22	100	100	100
Isopropanol	22	100	100	100
Industrial Methylated spirit	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.

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.

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<sup>LMS</sup>**

LMS dated May 14, 2004. 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 Loctite 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**

$$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$$

$$\text{kV/mm} \times 25.4 = \text{V/mil}$$

$$\text{mm} / 25.4 = \text{inches}$$

$$\text{N} \times 0.225 = \text{lb}$$

$$\text{N/mm} \times 5.71 = \text{lb/in}$$

$$\text{N/mm}^2 \times 145 = \text{psi}$$

$$\text{MPa} \times 145 = \text{psi}$$

$$\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$$

$$\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$$

$$\text{mPa}\cdot\text{s} = \text{cP}$$

**Note**

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

**Trademark usage**

LOCTITE is a trademark of Henkel Corporation

Reference 1