



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/mm ² | ≥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/mm ² | ≥5.2 ^{LMS} |
| | (psi) | (≥754) |

Cured for 24 hours @ 22 °C

Lap Shear Strength, ISO 4587:

| | | |
|----------------------|-------------------|------------------|
| Steel (grit blasted) | N/mm ² | 18 to 26 |
| | (psi) | (2,610 to 3,770) |
| Aluminum (etched) | N/mm ² | 11 to 19 |
| | (psi) | (1,595 to 2,755) |
| ABS | N/mm ² | >6 |
| | (psi) | (>870) |
| PVC | N/mm ² | >6 |
| | (psi) | (>870) |
| Polycarbonate | N/mm ² | >5 |
| | (psi) | (>725) |
| Phenolic | N/mm ² | 5 to 15 |
| | (psi) | (725 to 2,175) |
| Neoprene | N/mm ² | >10 |
| | (psi) | (>1,450) |
| Nitrile | N/mm ² | >10 |
| | (psi) | (>1,450) |

Tensile Strength, ISO 6922:

| | | |
|----------------------|-------------------|------------------|
| Steel (grit blasted) | N/mm ² | 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/mm ² | ≥8.3 ^{LMS} |
| | (psi) | (≥1,203) |

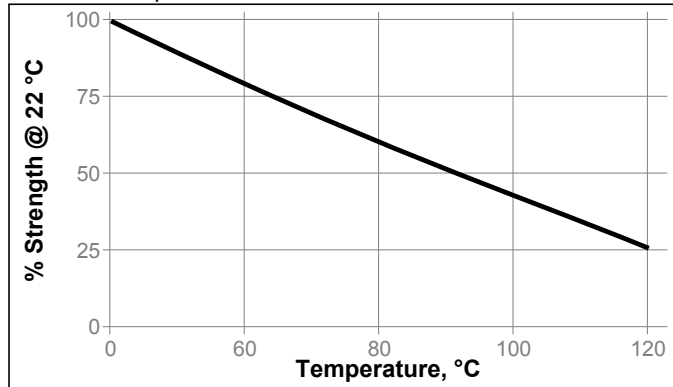


TYPICAL ENVIRONMENTAL RESISTANCE

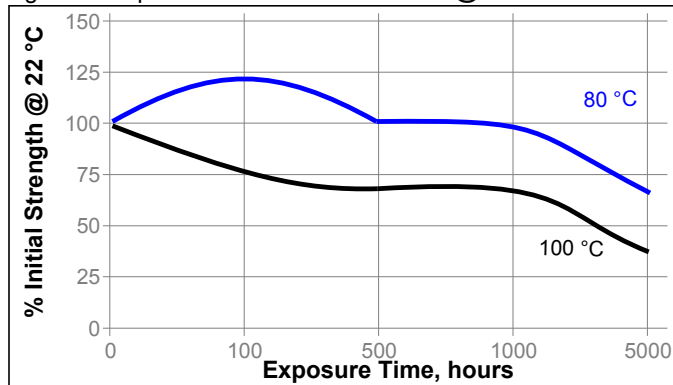
Cured for 1 week @ 22 °C
Lap Shear Strength, ISO 4587:
Mild steel (grit blasted)

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.

| Environment | °C | % of initial strength | | |
|-------------------------------|----|-----------------------|-------|--------|
| | | 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.

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^{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

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\mu\text{m} / 25.4 = \text{mil}$
 $\text{N} \times 0.225 = \text{lb}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{N/mm}^2 \times 145 = \text{psi}$
 $\text{MPa} \times 145 = \text{psi}$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

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.

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Reference 2.1



LOCTITE® 7455™

July 2004

PRODUCT DESCRIPTION

LOCTITE® 7455™ provides the following product characteristics:

| | |
|---|---|
| Technology | Cyanoacrylate Activator |
| Chemical Type | Amine (active ingredient) |
| Solvent | n-Heptane |
| Active Ingredient Concentration, % | 0.7 to 1.0 ^{LMS} |
| Appearance | Transparent colorless to slightly amber liquid ^{LMS} |
| Viscosity | Very low |
| Cure | Not applicable |
| Application | CA adhesive cure accelerator |

LOCTITE® 7455™ is used where increased cure speed of LOCTITE® cyanoacrylate adhesives is required. It can be either pre- or post-applied to the bond. The product is especially suited for post-application on cyanoacrylate adhesive to ensure rapid fixturing. Typical applications include securing wires or coils to PCBs, tamper-proofing adjustable components, mounting stand-offs, edge guides and board stiffeners. LOCTITE® 7455™ typical applications include bonding dissimilar materials such as metals, glass or ceramics and where fast fixturing is required between close fitting parts.

TYPICAL PROPERTIES

| | |
|-------------------------------|------------|
| Specific Gravity @ 25 °C | 0.68 |
| Viscosity @ 20 °C, mPa·s (cP) | 0.3 to 0.5 |
| Drying Time @ 20 °C, seconds | ≤60 |
| On Part Life, minutes | ≤1 |
| Flash Point - See MSDS | |

TYPICAL PERFORMANCE

Fixture time and cure speed achieved as a result of using LOCTITE® 7455™ depend on the adhesive used and the substrate bonded.

Fixture Time, ISO 4587, seconds:

| | |
|---|--------------------|
| Steel (degreased) using LOCTITE® 416™, single side activation | ≤15 ^{LMS} |
|---|--------------------|

(Fixture time is defined as the time to develop a shear strength of 0.1 N/mm²)

Handling precautions

Activator must be handled in a manner applicable to highly flammable materials and in compliance with relevant local regulations.

The solvent can affect certain plastics or coatings. It is recommended to check all surfaces for compatibility before use.

GENERAL INFORMATION

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected with a sealant for chlorine or other strong oxidizing materials.

For safe handling information on this product, consult the Material Safety Data Sheet (MSDS).

Under no circumstances should activator and adhesive be mixed directly as liquids. Use only in a well ventilated area.

Directions for use

Post Activation

1. Apply Loctite cyanoacrylate to the parts to be bonded or fixed.
2. Apply Activator over all exposed cyanoacrylate adhesive by spray or drop. (Typically use one drop of activator per drop of exposed adhesive).

Surface Activation

1. Apply one coating of Activator to the area to be bonded by spray, brush or dipping. Contaminated surfaces may need special cleaning or degreasing prior to activation to remove any soluble contamination.
2. Allow LOCTITE® 7455™ to fully evaporate from parts prior to bonding to avoid solvent entrapment within the bond joint.
3. Apply the Loctite cyanoacrylate product immediately after drying or not more than 45 seconds thereafter.
4. Activator can be re-applied if necessary if there is a delay of more than 45 seconds between original activator and adhesive application.

Loctite Material Specification^{LMS}

LMS dated July 08, 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 Quality.

Storage

This activator is classified as **HIGHLY FLAMMABLE** and must be stored in an appropriate manner in compliance with relevant regulations. Do not store near oxidising agents or combustible materials. The product is light sensitive and accordingly, translucent containers should be kept in a dark place when not in use. Store product in the unopened container in a dry location. Storage information may also be indicated on the product container labelling.

Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties. Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel 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

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Reference 1