



Product 3619

June 2003

PRODUCT DESCRIPTION

LOCTITE® Chipbonder® 3619 Syringe Dispense Adhesive provides the following product characteristics:

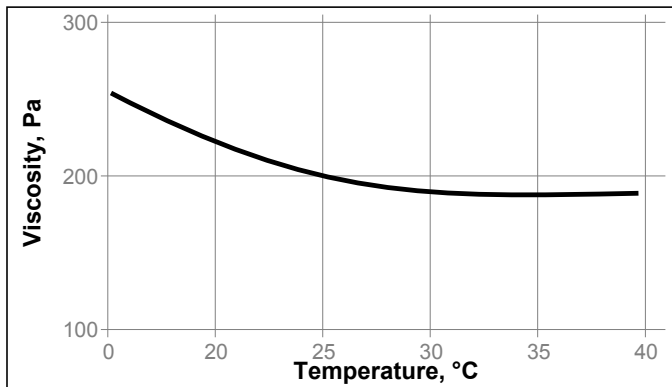
Technology	Epoxy
Chemical Type	Epoxy
Appearance (uncured)	Red high viscosity paste ^{LMS}
Components	One component - requires no mixing
Cure	Heat Cure
Application	Surface Mount Adhesive
Key Substrates	Electronic components to printed circuit boards.
Dispense Method	Syringe
Dispense Speed	High 25,000 -40,000 dph
Dot Profile	Syringe
Operating Temperature	-54°C to +150°C peaks to 260°C during processing allowed

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25°C 1.22 (1.18 to 1.26)
 Yield value @ 23°C, Pa:
 Haake PK 100, M10/PK 1 2° Cone:
 Casson Model over 0.4- 30 sec⁻¹ 200 to 450^{LMS}
 Particle Size, µm ≤80

Temperature - Viscosity Variation

The following graph shows a typical temperature-viscosity curve as measured using a Haake rotoviscometer PK100, M10/PK1 2° Cone system at a shear rate of 2 sec.⁻¹

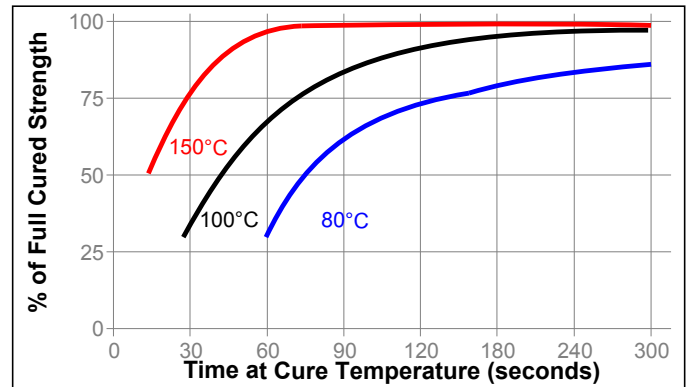


TYPICAL CURING PERFORMANCE

Recommended conditions for curing are exposure to heat above 100°C (typically 90-120 secs @ 150°C). Rate of cure and final strength will depend on the residence time at the cure temperature.

Cure Speed vs. Time, Temperature

The following graph shows the rate of torque strength developed with time at different temperatures. These times are defined from the moment the adhesive reaches cure temperature. In practice, total oven time may be longer to allow for heat up period. Strength is measured on 1206 capacitors at 22°C, tested according to IPC SM817, (2.4.42).



Isothermal DSC Conversion

3 minutes @ 90°C, % ≥70^{LMS}

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Density, g/cm³ 1.30
 Glass Transition Temperature, Tg, °C 50
 Coefficient of Thermal Expansion, µm/m/°C:
 Temperature Range -30 to +30°C 60
 Temperature Range 70°C to 150°C 120

Electrical Properties:

Volume Resistivity, ASTM D 257, Ω 1.2×10¹⁵
 Surface Resistivity, ASTM D 257, Ω 1.9×10¹⁶
 Dielectric Strength, ASTM D 149, kV/mm 30
 Surface Insulation Resistance, IPC-TM-650 to IPC-B-25:
 Initial 1×10¹²
 4 days @ 40°C, 95% RH 1×10¹²
 7 days @ 40°C, 95%RH 8.9×10¹¹
 Dielectric Constant / Loss, ASTM D 150:
 1kHz 3.24 / 0.02
 100 kHz 3.05 / 0.03
 1 MHz 2.89 / 0.04
 10 MHz 2.75 / 0.05
 Electrolytic Corrosion, DIN 53489 A-1

PERFORMANCE OF CURED MATERIAL

Cured 30 minutes @ 100°C.

Adhesive Properties:

Shear Strength, ASTM D 1002, N/mm² :
 Grit Blasted Mild Steel (GBMS):
 0.5 mm gap ≥14^{LMS}

Cured 5 minutes @ 100°C.

Adhesive Properties:

Torque Strength, IPC SM817, N.mm:
C-1206 on bare FR4 board 50 (30 to 70)

Pull-off Strength, IPC SM817, N:
C-1206 on bare FR4 board 50 (30 to 70)

Cured 90 seconds @ 100°C.

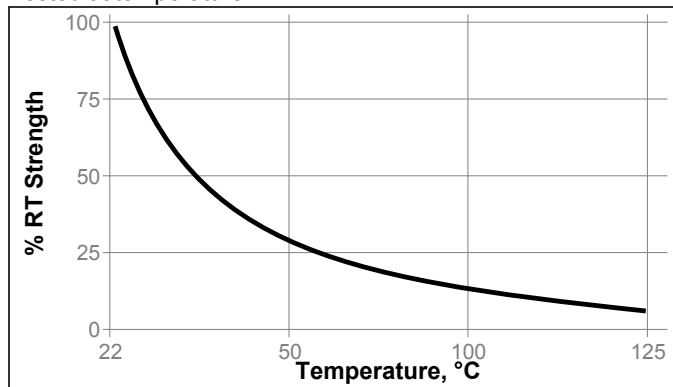
Adhesive Properties:

Push-off Strength, IPC SM817, N.mm:
C-1206 on bare FR4 board $\geq 25^{\text{LMS}}$

TYPICAL ENVIRONMENTAL RESISTANCE

Hot Strength

Tested at temperature



Resistance to Hot Solder Dip

Cured 90 seconds @ 100°C.

Adhesive Properties:

Hot Solder Dip, IPC SM817:
R-1206 on bare FR4 board: Passed
Supported 60 seconds above solder bath @ 260°C and dipped for 10 seconds

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. Product 3619 is supplied de-aerated in a range of ready-to-use syringes which fit straight into a variety of air pressure/time dispensing systems commonly available.
2. After storage in a refrigerator the adhesive must be allowed to equilibrate to room temperature before use, typically 24 hours. The product has a typical work life of 7 days if dispensed directly from the syringe package, and one shift (8 to 12 hours) if applied via stencil or screen print.
3. Avoid cross contamination with other epoxy or acrylic adhesives by ensuring dispense nozzels, adapters etc. are thoroughly cleaned.
4. The quantity of adhesive dispensed will depend on the dispense pressure, time, nozzle size and temperature.
5. These parameters will vary depending on the type of dispensing system use and should be optimised accordingly.
6. Dispensing temperature should ideally be controlled at a value between 30°C to 35°C for optimum results, however higher dispense temperatures are possible.
7. This product can also be dispensed using Archimedes Pump systems. For use on Piston Pump systems, contact your Loctite Technical Services unit.
8. The product is not recommended for dispensing by pin transfer.
9. Uncured adhesive can be cleaned from the board with isopropanol, MEK or glycol ether blends such as Prozone™.

Storage

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

Products shall be maintained, optimally, at temperatures between 2°C to 8°C unless otherwise labeled, or, specified. Storage, at temperatures below 2°C, or, greater than 8°C, is not recommended. Temperatures below 2°C and above 8°C can adversely affect product properties.

Material removed from containers may be contaminated during use. Do not return product to the original container. Loctite 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.

Loctite Material Specification^{LMS}

LMS dated August 01, 1999. 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.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} \times 0.039 = \text{inches}$
 $\text{mPas} = \text{cP}$
 $\text{N/mm}^2 \times 145 = \text{psi}$
 $\text{N} \times 0.225 = \text{lbs}$

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 Loctite 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 Loctite Corporation's products. Henkel Loctite 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 Loctite 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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Prozone is a Trademark of Halocarbon Products

Reference 0.0