

# LOCTITE 3607

January 2014

## PRODUCT DESCRIPTION

LOCTITE 3607 provides the following product characteristics:

<b>Technology</b>	Epoxy
<b>Chemical Type</b>	Epoxy
<b>Appearance (uncured)</b>	Red viscous gel <sup>LMS</sup>
<b>Components</b>	One component - requires no mixing
<b>Cure</b>	Heat cure
<b>Application</b>	Surface mount adhesive
<b>Key Substrates</b>	SMD components to PCB
<b>Other Application Areas</b>	Small parts bonding
<b>Dispense Method</b>	Pin transfer
<b>Wet Strength</b>	High

LOCTITE 3607 is designed for the bonding of surface mounted devices to printed circuit boards prior to wave soldering. The very low moisture absorption allows longer exposure to humidity in open baths without affecting dispensability or causing void formation in the cured adhesive.

## TYPICAL PROPERTIES OF UNCURED MATERIAL

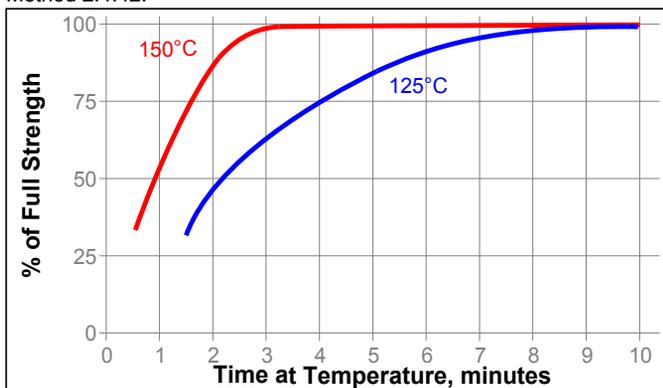
Specific Gravity @ 25 °C	1.2
Yield Point, 25 °C, Pa	150 to 350 <sup>LMS</sup>
Cone & Plate Rheometer:	
Haake PK 100, M10/PK 1 2° Cone	
Casson Viscosity @ 25 °C, Pa·s	5 to 20
Cone & Plate Rheometer:	
Haake PK 100, M10/PK 1 2° Cone	
Flash Point - See SDS	

## TYPICAL CURING PERFORMANCE

Recommended conditions for curing are exposure to heat above 100°C (typically 150 -180 seconds @ 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 @ 22 °C, tested according to IPC SM817, TM-650 Method 2.4.42.



## Isothermal DSC Conversion

 5 minutes @ 125 °C, % ≥85<sup>LMS</sup>

## TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 30 minutes @ 150 °C

### Physical Properties

Coefficient of Thermal Expansion, ISO 11359-2, K <sup>-1</sup>	145×10 <sup>-6</sup>
Coefficient of Thermal Conductivity, ISO 8302, W/(m·K)	0.4
Specific Heat, kJ/(kg·K)	0.3

### Electrical Properties

Dielectric Constant / Dissipation Factor, IEC 60250:	
1 kHz	3.7 / 0.01
10 kHz	3.6 / 0.01
Volume Resistivity, IEC 60093, Ω·cm	2×10 <sup>15</sup>
Surface Resistivity, IEC 60093, Ω	2×10 <sup>15</sup>
Dielectric Breakdown Strength, IEC 60243-1, kV/mm	24

## TYPICAL PERFORMANCE OF CURED MATERIAL

### Adhesive Properties

Cured for 5 minutes @ 125 °C

Pull-off Strength, Siemens norm SN59651:		
C-1206 on bare FR4 board	N (lb)	35 to 75 (7.9 to 16.9)

Torque Strength, IPC SM817, TM-650 Method 2.4.42:

C-1206 on bare FR4 board	N·mm (in.oz)	40 to 80 (5.7 to 11.4)
--------------------------	--------------	------------------------

Cured for 3 minutes @ 150 °C

Push-off Strength:

C-1206 on bare FR4 board	N (lb)	≥30 <sup>LMS</sup> (≥6.8)
--------------------------	--------	---------------------------

Cured for 30 minutes @ 150 °C

Lap Shear Strength, ISO 4587:

Steel (grit blasted)	N/mm <sup>2</sup> (psi)	≥25 <sup>LMS</sup> (≥3,625)
----------------------	-------------------------	-----------------------------

Bond strength achieved in practice will vary considerably depending on the SMD component type, adhesive dot size and the type, grade and degree of cure of the solder mask/resist.

**TYPICAL ENVIRONMENTAL RESISTANCE****Resistance to Hot Solder Dip**

Cured for 90 seconds @ 150 °C

Hot Solder Dip, IPC SM817, TM-650 Method 2.4.42.1, Pass/Fail:

R-1206 on bare FR4 board:

Supported 60 seconds above solder bath @ 260°C and dipped for 10 seconds	Pass
--------------------------------------------------------------------------	------

**Resistance to Process Conditions**

Cured for 90 seconds @ 150 °C

Torque Strength, IPC SM817, TM-650 Method 2.4.42, % of initial strength retained:

C-1206 on bare FR4 board:

Aged 30 seconds preheat to 100°C and 3 seconds @ 260°C with flux and wave solder	100
----------------------------------------------------------------------------------	-----

**GENERAL INFORMATION****For safe handling information on this product, consult the Safety Data Sheet (SDS).****Directions for use:**

- After storage in a refrigerator the adhesive must be allowed to equilibrate to room temperature before use, typically 2 to 4 hours.
- Avoid cross contamination with other adhesive residues by ensuring dispense nozzles, adapters etc. are thoroughly cleaned.
- The quantity of adhesive dispensed will depend on the pin type and size, depth pin is dipped into adhesive and adhesive temperature.
- These parameters will vary depending on the type of dispensing system used and should be optimised accordingly.
- Bath temperature should ideally be controlled at a value between 25°C to 30°C, 50 % RH for optimum results. Under these conditions product will remain dispensable in the tray for at least 2 to 3 days and for up to five days with frequent replenishment of new material.
- Uncured adhesive can be cleaned from the board with isopropanol, MEK or ester blends such as LOCTITE® 7360™.

**Loctite Material Specification<sup>LMS</sup>**

LMS dated February 26, 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 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/mm<sup>2</sup> 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.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

**In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:**

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

**In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:**

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. 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.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

**In case products are delivered by Henkel Corporation, Resin Technology Group, Inc., or Henkel Canada Corporation, the following disclaimer is applicable:**

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**

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 1.1