

LOCTITE® 675

October 2022

PRODUCT DESCRIPTION

LOCTITE® 675 provides the following product characteristics:

Technology	Acrylic
Chemical Type	Dimethacrylate ester
Appearance (uncured)	Green liquid
Fluorescence	Positive under UV light
Components	One component - requires no mixing
Viscosity	Low
Cure	Anaerobic
Secondary Cure	Activator
Application	Retaining
Strength	High

LOCTITE® 675 is designed for the bonding of cylindrical fitting parts. The product cures when confined in the absence of air between close fitting metal surfaces and prevents loosening and leakage from shock and vibration. Typical applications include filling inner voids in close fitting press fits, keyways, and splines; mounting bearings and bushings, and making press fits even stronger.

Mil-R-46082B

LOCTITE® 675 is tested to the lot requirements of Military Specification Mil-R-46082B. **Note:** This is a regional approval. Please contact your local Technical Service Center for more information and clarification.

ASTM D5363

Each lot of adhesive produced in North America is tested to the general requirements defined in paragraphs 5.1.1 and 5.1.2 and to the Detail Requirements defined in section 5.2.

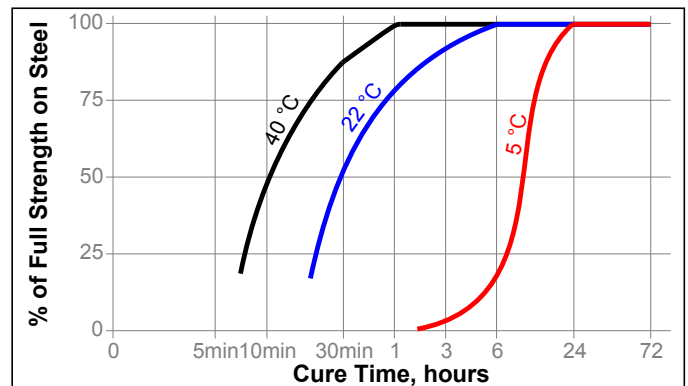
TYPICAL PROPERTIES OF UNCURED MATERIAL

Flash Point - See SDS	>93
Viscosity @ 25°C, mPa·s (cP):	
Brookfield RVT:	
Spindle 1 @ 50 rpm	100 to 150
Toxicity	Low

TYPICAL CURING PERFORMANCE

Cure Speed vs. Temperature

The rate of cure will depend on the temperature. The graph below shows the breakaway strength developed with time at different temperatures on steel pins and collars and tested according to ISO 10123.



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Thermal Expansion, ISO 11359-2, K ⁻¹	75×10 ⁻⁶
--	---------------------

TYPICAL PERFORMANCE OF CURED MATERIAL

After 24 hours @ 22°C

Adhesive Properties:

Lap Shear Strength, DIN 54452, N/mm ² :	
Steel pins and collars	≥15.8
Compressive Shear, N/mm ² :	
Steel pins and collars	≥15.8 ^{LMS}

TYPICAL ENVIRONMENTAL RESISTANCE

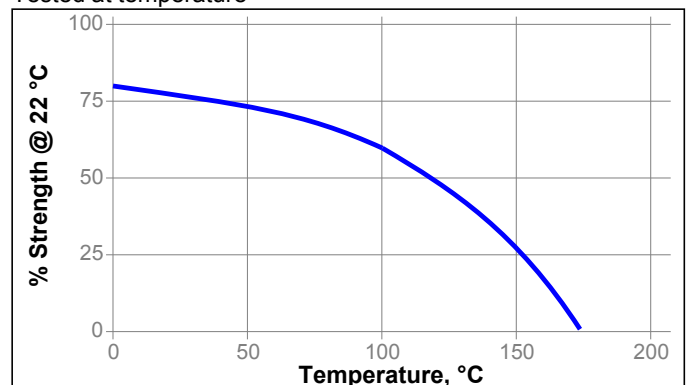
Cured 1 week @ 22°C.

Adhesive Properties:

Lap Shear Strength, ASTM D 4562, N/mm ² :	
Steel pins and collars	

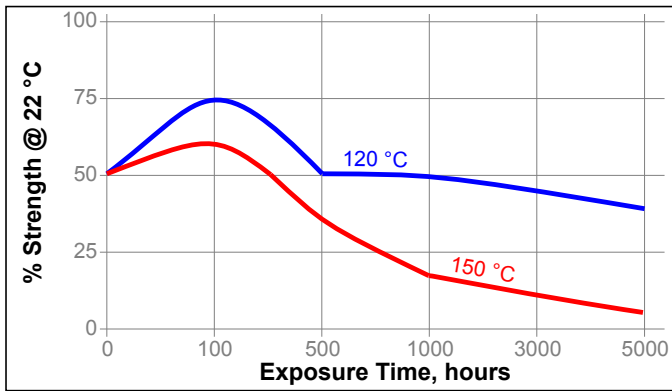
Hot Strength

Tested at temperature



Heat Aging

Aged at temperature indicated and tested @ 23 °C

**Chemical/Solvent Resistance**

Aged under conditions indicated and tested @ °C

Environment	°C	% of initial strength	
		720 h	
Water	22	56	
Toluene	22	83	
SAE 10W Oil	22	100	
Mil. oil type #6	22	100	
Aircraft fuel (JP-4)	22	100	
Aircraft fuel (JP-5)	22	100	
Air reference	22	100	

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 Safety Data Sheet (SDS).

Where aqueous washing systems are used to clean the surfaces before bonding, it is important to check for compatibility of the washing solution with the adhesive. In some cases these aqueous washes can affect the cure and performance of the adhesive.

This product is not normally recommended for use on plastics (particularly thermoplastic materials where stress cracking of the plastic could result). Users are recommended to confirm compatibility of the product with such substrates.

Directions for use

Determine if the substrates to be bonded are made from an *active* or an *inactive* material. LOCTITE® 675 will react faster with *active* metals. While *inactive* metals will require the use of an Activator to obtain maximum strength and cure speed at room temperature. If the metal is unknown, we recommend to use Activator 7471™.

Active Metals

Steel
Copper
Brass
Manganese
Bronze

Inactive Metals

Stainless Steel
Nickel
Zinc
Cadmium
Pure Aluminum

Titanium
Aluminum Alloy

Bright Platings
Anodized Surface

For Assembly

1. For best results, clean all surfaces (external and internal) with a LOCTITE® cleaning solvent and allow to dry.
2. **For Slip Fitted Assemblies**, apply adhesive around the leading edge of the pin and the inside of the collar and use a rotating motion during assembly to ensure good coverage.
3. **For Press Fitted Assemblies**, apply adhesive thoroughly to both bond surfaces and assemble at high press on rates.
4. **For Shrink Fitted Assemblies** the adhesive should be coated onto the pin, the collar should then be heated to create sufficient clearance for free assembly.
5. Parts should not be disturbed until sufficient handling strength is achieved.

For Disassembly

1. Apply localized heat to the assembly to approximately 250 °C. Disassemble while hot.

Clean-up

1. Cured product can be removed with a combination of soaking in a LOCTITE® solvent and mechanical abrasion such as a wire brush.

Loctite Material Specification^{LMS}

LMS dated , . 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.

Products shall be maintained at temperatures between 8°C to 28°C unless otherwise labeled, or, specified. Storage, at temperatures below 8°C, or, greater than 28°C, is not recommended. Temperatures below 8°C and above 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 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 Henkel 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

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 0.4





Revision Number: 004.3

Issue date: 05/09/2017

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: LOCTITE 675 RETAINING COMPOUND
 known as LOCTITE® 675 RETAINING COMPOUN
Product type: Anaerobic Adhesive
Restriction of Use: None identified
Company address: Henkel Corporation
 One Henkel Way
 Rocky Hill, Connecticut 06067

IDH number: 135533

Item number: 67541
Region: United States

Contact information:
 Telephone: (860) 571-5100
 MEDICAL EMERGENCY Phone: Poison Control Center
 1-877-671-4608 (toll free) or 1-303-592-1711
 TRANSPORT EMERGENCY Phone: CHEMTREC
 1-800-424-9300 (toll free) or 1-703-527-3887
 Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER: CAUSES SKIN IRRITATION.
 MAY CAUSE AN ALLERGIC SKIN REACTION.
 CAUSES SERIOUS EYE DAMAGE.

HAZARD CLASS	HAZARD CATEGORY
SKIN IRRITATION	2
SERIOUS EYE DAMAGE	1
SKIN SENSITIZATION	1

PICTOGRAM(S)



Precautionary Statements

Prevention: Avoid breathing vapors, mist, or spray. Wash affected area thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves, eye protection, and face protection.

Response: IF ON SKIN: Wash with plenty of water. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If skin irritation or rash occurs: Get medical attention. Take off contaminated clothing.

Storage: Not prescribed

Disposal: Dispose of contents and/or container according to Federal, State/Provincial and local governmental regulations.

Classification complies with OSHA Hazard Communication Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

IDH number: 135533

Product name: LOCTITE 675 RETAINING COMPOUND known as LOCTITE® 675 RETAINING COMPOUN

Hazardous Component(s)	CAS Number	Percentage*
Polyglycol dimethacrylate	25852-47-5	80 - 90
Poly (ethyl methacrylate)	9003-42-3	1 - 5
Acrylic acid	79-10-7	1 - 5
Cumene hydroperoxide	80-15-9	1 - 5
Saccharin	81-07-2	1 - 5
Cumene	98-82-8	0.1 - 1

* Exact percentages may vary or are trade secret. Concentration range is provided to assist users in providing appropriate protections.

4. FIRST AID MEASURES

Inhalation:	Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Skin contact:	Immediately flush skin with plenty of water (using soap, if available). Remove contaminated clothing and footwear. Wash clothing before reuse. Get medical attention.
Eye contact:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Ingestion:	DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.
Symptoms:	See Section 11.

5. FIRE FIGHTING MEASURES

Extinguishing media:	Water spray (fog), foam, dry chemical or carbon dioxide.
Special firefighting procedures:	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear. In case of fire, keep containers cool with water spray.
Unusual fire or explosion hazards:	Uncontrolled polymerization may occur at high temperatures resulting in explosions or rupture of storage containers.
Hazardous combustion products:	Oxides of carbon. Irritating organic vapours.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions:	Do not allow product to enter sewer or waterways.
Clean-up methods:	Remove all sources of ignition. Evacuate and ventilate spill area; dike spill to prevent entry into water system; wear full protective equipment during clean-up. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Scrape up as much material as possible. Store in a partly filled, closed container until disposal. Refer to Section 8 "Exposure Controls / Personal Protection" prior to clean up.

7. HANDLING AND STORAGE

Handling: Use only with adequate ventilation. Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling. Keep container closed. Refer to Section 8.

Storage: For safe storage, store at or below 38 °C (100.4 °F)
Keep in a cool, well ventilated area away from heat, sparks and open flame.
Keep container tightly closed until ready for use.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous Component(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Polyglycol dimethacrylate	None	None	None	None
Poly (ethyl methacrylate)	None	None	None	None
Acrylic acid	2 ppm TWA (SKIN)	None	None	1 ppm TWA 3 ppm STEL (SKIN)
Cumene hydroperoxide	None	None	1 ppm (6 mg/m3) TWA (SKIN)	None
Saccharin	None	None	None	None
Cumene	50 ppm TWA	50 ppm (245 mg/m3) PEL (SKIN)	None	None

Engineering controls: Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

Respiratory protection: Use NIOSH approved respirator if there is potential to exceed exposure limit(s).

Eye/face protection: Safety goggles or safety glasses with side shields. Full face protection should be used if the potential for splashing or spraying of product exists. Safety showers and eye wash stations should be available.

Skin protection: Use chemical resistant, impermeable clothing including gloves and either an apron or body suit to prevent skin contact. Neoprene gloves. Butyl rubber gloves. Natural rubber gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Liquid
Color:	Green
Odor:	Mild
Odor threshold:	Not available.
pH:	Not applicable
Vapor pressure:	< 5 mm hg (27 °C (80.6 °F))
Boiling point/range:	> 149 °C (> 300.2 °F)
Melting point/ range:	Not available.
Specific gravity:	1.109
Vapor density:	Not available.
Flash point:	> 93.3 °C (> 199.94 °F)
Flammable/Explosive limits - lower:	Not available.
Flammable/Explosive limits - upper:	Not available.
Autoignition temperature:	Not available.
Flammability:	Not applicable
Evaporation rate:	Not available.
Evaporation rate:	Not available.
Solubility in water:	Not soluble
Partition coefficient (n-octanol/water):	Not available.

VOC content: 1.93 %; 18.43 g/l
 Viscosity: Not available.
 Decomposition temperature: Not available.

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions of storage and use.

Hazardous reactions: None under normal processing. Polymerization may occur at elevated temperature or in the presence of incompatible materials.

Hazardous decomposition products: Oxides of carbon. Irritating organic vapours.

Incompatible materials: Strong oxidizing agents. Strong reducing agents. Strong alkalis. Amines. Other polymerization initiators.

Reactivity: Not available.

Conditions to avoid: Elevated temperatures. Heat, flames, sparks and other sources of ignition. Store away from incompatible materials.

11. TOXICOLOGICAL INFORMATION

Relevant routes of exposure: Skin, Inhalation, Eyes, Ingestion

Potential Health Effects/Symptoms

Inhalation: Inhalation of vapors or mists of the product may be irritating to the respiratory system. May cause irritation to nose and throat.

Skin contact: Causes skin irritation. May cause allergic skin reaction.

Eye contact: Causes serious eye damage.

Ingestion: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Hazardous Component(s)	LD50s and LC50s	Immediate and Delayed Health Effects
Polyglycol dimethacrylate	None	Allergen, Irritant
Poly (ethyl methacrylate)	None	Irritant
Acrylic acid	Oral LD50 (Rat) = 33.5 mg/kg Oral LD50 (Mouse) = 2,400 mg/kg Oral LD50 (Rat) = 2.5 g/kg Oral LD50 (Rat) = 193 mg/kg Oral LD50 (Rat) = 1,250 mg/kg Inhalation LC50 (Rat, 4 h) = 1,200 mg/l	Allergen, Corrosive, Irritant, Kidney, Liver
Cumene hydroperoxide	Inhalation LC50 (Mouse, 4 h) = 200 mg/l	Allergen, Central nervous system, Corrosive, Irritant, Mutagen
Saccharin	Oral LD50 (Mouse) = 17 g/kg	No Target Organs
Cumene	Oral LD50 (Rat) = 2.91 g/kg Oral LD50 (Rat) = 1,400 mg/kg Inhalation LC50 (Rat, 4 h) = 8000 ppm	Central nervous system, Irritant, Lung

Hazardous Component(s)	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Polyglycol dimethacrylate	No	No	No
Poly (ethyl methacrylate)	No	No	No
Acrylic acid	No	No	No
Cumene hydroperoxide	No	No	No
Saccharin	No	No	No
Cumene	Reasonably Anticipated to be a Human Carcinogen.	Group 2B	No

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

Hazardous waste number: Not a RCRA hazardous waste.

14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: RQ, Environmentally hazardous substance, liquid, n.o.s.
Hazard class or division: 9
Identification number: UN 3082
Packing group: III
DOT Hazardous Substance(s): alpha,alpha-Dimethylbenzylhydroperoxide

International Air Transportation (ICAO/IATA)

Proper shipping name: RQ, Environmentally hazardous substance, liquid, n.o.s.
Hazard class or division: 9
Identification number: UN 3082
Packing group: III

Water Transportation (IMO/IMDG)

Proper shipping name: RQ, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Hazard class or division: 9
Identification number: UN 3082
Packing group: III

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

TSCA 12 (b) Export Notification: None above reporting de minimis

CERCLA/SARA Section 302 EHS: None above reporting de minimis.

CERCLA/SARA Section 311/312: Immediate Health, Delayed Health

CERCLA/SARA Section 313: This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Acrylic acid (CAS# 79-10-7). Cumene hydroperoxide (CAS# 80-15-9). Saccharin (CAS# 81-07-2).

CERCLA Reportable quantity: Cumene hydroperoxide (CAS# 80-15-9) 10 lbs. (4.54 kg)

California Proposition 65: This product contains a chemical known in the State of California to cause cancer.

Canada Regulatory Information

CEPA DSL/NDSL Status: Contains one or more components listed on the Non-Domestic Substances List. All other components are listed on or are exempt from listing on the Domestic Substances List. Components listed on the NDSL must be tracked by all Canadian Importers of Record as required by Environment Canada. They may be imported into Canada in limited quantities. Please contact Regulatory Affairs for additional details.

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: Reviewed SDS. Reissued with new date.

Prepared by: Sheila Gines, Regulatory Affairs Specialist

Issue date: 05/09/2017

DISCLAIMER: The data contained herein are furnished for information only and are believed to be reliable. However, Henkel Corporation and its affiliates ("Henkel") does not assume responsibility for any results obtained by persons over whose methods Henkel has no control. It is the user's responsibility to determine the suitability of Henkel's products or any production methods mentioned herein for a particular purpose, and to adopt such precautions as may be advisable for the protection of property and persons against any hazards that may be involved in the handling and use of any Henkel's products. In light of the foregoing, Henkel specifically disclaims all warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, arising from sale or use of Henkel's products. Henkel further disclaims any liability for consequential or incidental damages of any kind, including lost profits.