

*Your Source for*  
**LOCTITE® PRODUCTS  
 FOR DESIGN, ASSEMBLY,  
 MANUFACTURING & MAINTENANCE**  
**AGENCY LISTINGS**

LOCTITE® PRODUCTS ARE DESIGNED TO MEET THE SPECIFICATIONS AND TESTING STANDARDS OF A VARIETY OF AGENCIES. THE FOLLOWING IS A LIST OF PRODUCTS AND STANDARDS TO WHICH SUCH PRODUCTS MAY CONFORM. BECAUSE SUCH STANDARDS CHANGE OR MAY BE MODIFIED, NO WARRANTY IS GIVEN REGARDING SUCH COMPLIANCE. THE INFORMATION PROVIDED BELOW MAY BE USED, HOWEVER, AS A QUICK REFERENCE TOOL TO AID IN DESIGN OR APPLICATION. FOR UP-TO-THE-MINUTE INFORMATION ON AGENCY APPROVALS, OR TO INQUIRE ABOUT ADDITIONAL AGENCY APPROVALS, PLEASE CONTACT HENKEL TECHNICAL SUPPORT AT 1-800-LOCTITE (562-8483) WITH ANY INQUIRIES. LAST UPDATED MAY 28, 2010.

**NSF® International**

**NON-FOOD COMPOUND**

- Loctite® 222MS™ Threadlocker, Low Strength/Small Screw
- Loctite® 242® Threadlocker, Medium Strength
- Loctite® 262™ Threadlocker, Medium to High Strength
- Loctite® 290™ Threadlocker, Wicking Grade
- Loctite® 587™ Blue, High Performance RTV Silicone Gasket Maker
- Loctite® 5900® Flange Sealant, Heavy Body RTV Silicone
- Loctite® 7649™ Primer N™
- Loctite® Food Grade Anti-Seize
- Loctite® Food Grade Grease
- Loctite® ODC-Free Cleaner & Degreaser
- Loctite® ViperLube® Clear High Performance Synthetic Grease
- Loctite® ViperLube® High Performance Synthetic Grease
- Loctite® ViperLube® High Performance Synthetic Grease (aerosol)
- Loctite® Food Grade Anti-Seize
- Loctite® Food Grade Grease

**STANDARD 51**

- Superflex® RTV, Silicone Adhesive Sealants Clear

**STANDARD 61**

- Loctite® 242® Threadlocker, Medium Strength
- Loctite® 290™ Threadlocker, Wicking Grade
- Loctite® 480™ Prism® Instant Adhesive, Black/Toughened
- Loctite® 518™ Gasket Eliminator® Flange Sealant
- Loctite® QuickStix™ 561™ PST® Pipe Sealant
- Loctite® 565™ PST® Thread Sealant, Controlled Strength
- Loctite® 567™ PST® Thread Sealant, High Temperature
- Loctite® 680™ Retaining Compound, Slip Fit/High Strength
- Loctite® 7649™ Primer N™
- Loctite® Fixmaster® Metal Magic Steel

**American Bureau of Shipping (ABS)**

- Loctite® 242® Threadlocker, Medium Strength
- Loctite® 262™ Threadlocker, Medium to High Strength
- Loctite® 404™ Quick Set™ Instant Adhesive, General-Purpose
- Loctite® 454™ Prism® Instant Adhesive, Surface Insensitive Gel
- Loctite® 495™ Super Bonder® Instant Adhesive
- Loctite® 545™ Thread Sealant, Hydraulic/Pneumatic Fittings
- Loctite® 567™ PST® Thread Sealant, High Temperature
- Loctite® 587™ Blue, High Performance RTV Silicone Gasket Maker
- Loctite® 598™ Black, High Performance RTV Silicone Gasket Maker
- Loctite® 620™ Retaining Compound, Slip Fit/High Temperature
- Loctite® 680™ Retaining Compound, Slip Fit/High Strength
- Loctite® Extend® Rust Treatment
- Loctite® Fixmaster® Aluminum Liquid
- Loctite® Fixmaster® Aluminum Putty
- Loctite® Fixmaster® Poxy Pak™, Fast Cure Epoxy
- Loctite® Fixmaster® Fast Set Steel Putty
- Loctite® Fixmaster® Flex 80™ Putty
- Loctite® Fixmaster® Marine Chocking
- Loctite® Fixmaster® Stainless Steel Putty
- Loctite® Fixmaster® Steel Liquid
- Loctite® Fixmaster® Steel Putty
- Loctite® Fixmaster® Wear-Resistant Putty
- Loctite® Fixmaster® Wet Surface Repair Putty
- Loctite® Marine Grade Anti-Seize
- Loctite® Nickel Anti-Seize
- Loctite® Nordbak® Brushable Ceramic, Grey
- Loctite® Nordbak® Pneu-Wear
- Loctite® Silver Grade Anti-Seize

**Navy Environmental Health Center (NEHC)**

- Loctite® Fixmaster® Aluminum Putty
- Loctite® Fixmaster® Fast Set Steel Epoxy
- Loctite® Fixmaster® Stainless Steel Putty
- Loctite® Fixmaster® Steel Putty
- Loctite® Fixmaster® Superior Metal
- Loctite® Fixmaster® Wear-Resistant Putty
- Loctite® Fixmaster® Wet Surface Repair Putty
- Loctite® Nordbak® Pneu-Wear
- Loctite® Nordbak® Wearing Compound

**Military Specifications (Mil Spec)**

- Loctite® 220™ Threadlocker, Wicking Grade/Low Strength
- Loctite® 222MS™ Threadlocker, Low Strength/Small Screw
- Loctite® 242® Threadlocker, Medium Strength
- Loctite® 262™ Threadlocker, Medium to High Strength
- Loctite® 271™ Threadlocker, High Strength
- Loctite® 277™ Threadlocker, High Strength/Large Threads
- Loctite® 290™ Threadlocker, Wicking Grade
- Loctite® 571™ Thread Sealant, Pipe Sealant HVV
- Loctite® 609™ Retaining Compound, Press Fit/General-Purpose
- Loctite® 635™ Retaining Compound, Slip Fit/High Strength/Slow Cure
- Loctite® 640™ Retaining Compound, Press Fit/Medium Strength/High Temperature
- Loctite® 675™ Retaining Compound, Press Fit/Medium Strength
- Loctite® 712™ Tak Pak® Accelerator
- Loctite® 5040™ RTV Silicone
- Loctite® 5045™ Flange Sealant
- Loctite® 7452™ Tak Pak® Accelerator
- Loctite® 7471™ Primer T™
- Loctite® 7649™ Primer N™
- Loctite® Moly-50™ Anti-Seize

**Military Specifications (Commercial Item Description)**

- Loctite® 404™ Quick Set™ Instant Adhesive, General-Purpose
- Loctite® 406™ Prism® Instant Adhesive, Surface Insensitive
- Loctite® 414™ Super Bonder® Instant Adhesive
- Loctite® 415™ Super Bonder® Instant Adhesive
- Loctite® 416™ Super Bonder® Instant Adhesive
- Loctite® 420™ Super Bonder® Instant Adhesive
- Loctite® 422™ Super Bonder® Instant Adhesive
- Loctite® 430™ Super Bonder® Instant Adhesive
- Loctite® 444™ Tak Pak® Instant Adhesive
- Loctite® 493™ Super Bonder® Instant Adhesive
- Loctite® 495™ Super Bonder® Instant Adhesive
- Loctite® 496™ Super Bonder® Instant Adhesive

**Federal Food Drug & Cosmetic Act**

- 21 C.F.R. § 175.300**
- Loctite® 2046™ Threadlocker

**ISO 10993 Compliant**

- Loctite® M-11FL™ Hysol® Medical Device Urethane Adhesive
- Loctite® M-21HP™ Hysol® Medical Device Epoxy Adhesive
- Loctite® M-31CL™ Hysol® Medical Device Epoxy Adhesive
- Loctite® M-121HP™ Hysol® Medical Device Epoxy Adhesive
- Loctite® 713™ Prism® Medical Device Accelerator
- Loctite® 3201™ Light Cure Adhesive, Polycarbonate/Thermoplastics
- Loctite® 3211™ Light Cure Adhesive, Polycarbonate/Thermoplastics
- Loctite® 3301™ Light Cure Adhesive, Plastic/Metal
- Loctite® 3311™ Light Cure Adhesive, Plastic/Metal
- Loctite® 3321™ Light Cure Adhesive, Plastic/Metal
- Loctite® 3341™ Light Cure Adhesive, Plasticized Substrates
- Loctite® 3345™ Light Cure Adhesive, Glass/Metal
- Loctite® 3381™ Light Cure Adhesive, Flexible/Plastics
- Loctite® 3552™ Indigo® Light Cure Adhesive
- Loctite® 3553™ Indigo® Light Cure Adhesive
- Loctite® 3911™ Light Cure Adhesive
- Loctite® 3912™ Light Cure Adhesive
- Loctite® 3913™ Light Cure Adhesive
- Loctite® 3921™ Light Cure Adhesive, Plastic/Metal
- Loctite® 3922™ Light Cure Adhesive, Plastic/Metal
- Loctite® 3924™ Light Cure Adhesive, Plastic/Metal
- Loctite® 3926™ Light Cure Adhesive, Plastic/Metal
- Loctite® 3933™ Light Cure Adhesive
- Loctite® 3936™ Light Cure Adhesive
- Loctite® 3941™ Light Cure Adhesive, High Performance/Various Substrates
- Loctite® 3942™ Light Cure Adhesive, High Performance/Various Substrates
- Loctite® 3943™ Light Cure Adhesive, High Performance/Various Substrates
- Loctite® 3944™ Light Cure Adhesive
- Loctite® 3971™ Light Cure Adhesive, Plasticized Substrates
- Loctite® 3972™ Light Cure Adhesive, Plasticized Substrates
- Loctite® 3981™ Hysol® Epoxy Adhesive, High Performance/Various Substrates
- Loctite® 3982™ Hysol® Epoxy Adhesive, High Performance/Various Substrates
- Loctite® 3984™ Hysol® Epoxy Adhesive, High Performance/Various Substrates
- Loctite® 4011™ Prism® Medical Device Instant Adhesive
- Loctite® 4013™ Prism® Medical Device Instant Adhesive
- Loctite® 4014™ Prism® Medical Device Instant Adhesive
- Loctite® 4031™ Prism® Medical Device Instant Adhesive
- Loctite® 4061™ Prism® Medical Device Instant Adhesive
- Loctite® 4081™ Prism® Medical Device Instant Adhesive
- Loctite® 4161™ Super Bonder® Medical Device Instant Adhesive
- Loctite® 4206™ Prism® Medical Device Instant Adhesive
- Loctite® 4304™ Flashcure® Light Cure Adhesive
- Loctite® 4305™ Flashcure® Light Cure Adhesive
- Loctite® 4306™ Flashcure® Light Cure Adhesive, Instant
- Loctite® 4307™ Flashcure® Light Cure Adhesive, Instant
- Loctite® 4541™ Prism® Medical Device Instant Adhesive
- Loctite® 4601™ Prism® Medical Device Instant Adhesive
- Loctite® 4851™ Prism® Medical Device Instant Adhesive, Flexible
- Loctite® 4861™ Prism® Medical Device Instant Adhesive, Flexible
- Loctite® 4981™ Super Bonder® Medical Device Instant Adhesive
- Loctite® 5248™ Nuva-Sil® Medical Device Silicone Adhesive
- Loctite® 7451™ Prism® Medical Device Accelerator
- Loctite® 7701™ Prism® Medical Device Adhesive Primer

**UL® Classified/Listed for U.S.**

- Loctite® 271™ Threadlocker, High Strength
- Loctite® 515™ Gasket Eliminator® Flange Sealant
- Loctite® QuickStix™ 561™ PST® Pipe Sealant
- Loctite® 565™ PST® Thread Sealant, Controlled Strength
- Loctite® 567™ PST® Thread Sealant, High Temperature
- Loctite® 587™ Blue, High Performance RTV Silicone Gasket Maker
- Loctite® 5091™ Nuva-Sil® Silicone Potting Compound, High Adhesion
- Loctite® 5600™ Silicone Sealant
- Loctite® 7804FRM-HV™ Hysol® Hot Melt Adhesive
- Loctite® 7809FR™ Hysol® Hot Melt Adhesive, Polyamide
- Loctite® Superflex® RTV, Silicone Adhesive Sealants Clear

**ULC Classified for Canada**

- Loctite® 565™ PST® Thread Sealant, Controlled Strength
- Loctite® 567™ PST® Thread Sealant, High Temperature

**CSA® International**

- Loctite® 565™ PST® Thread Sealant, Controlled Strength
- Loctite® 567™ PST® Thread Sealant, High Temperature

**Lloyd's Register Certification**

- Loctite® Fixmaster® Aluminum Liquid
- Loctite® Fixmaster® Aluminum Putty
- Loctite® Fixmaster® Fast Set Steel Epoxy
- Loctite® Fixmaster® Marine Chocking – Orange
- Loctite® Fixmaster® Marine Chocking – Green
- Loctite® Fixmaster® Steel Liquid
- Loctite® Fixmaster® Steel Putty
- Loctite® Fixmaster® Stainless Steel Putty
- Loctite® Fixmaster® Superior Metal
- Loctite® Fixmaster® Wear-Resistant Putty
- Loctite® Nordbak® Pneu-Wear
- Loctite® Nordbak® Brushable Ceramic – Grey

**[ Evaluated and Accepted by the Canadian Food Inspection Agency ]**

**Canadian Food Inspection Agency (CFIA)**

- Loctite® 220™ Threadlocker, Wicking Grade/Low Strength
- Loctite® 222MS™ Threadlocker, Low Strength/Small Screw
- Loctite® 242™ Threadlocker, Medium Strength
- Loctite® QuickStix™ 248™ Threadlocker, Medium Strength/Removable
- Loctite® 262™ Threadlocker, Medium to High Strength
- Loctite® 266™ Threadlocker, High Strength/High Temperature
- Loctite® QuickStix™ 268™ Threadlocker, High Strength
- Loctite® 271™ Threadlocker, High Strength
- Loctite® 272™ Threadlocker, High Strength/High Temperature
- Loctite® 2760™ Threadlocker, Primerless/High Strength
- Loctite® 290™ Threadlocker, Wicking Grade
- Loctite® 380™ Black Max® Instant Adhesive, Toughened
- Loctite® 401™ Prism® Instant Adhesive, Surface Insensitive
- Loctite® 404™ Quick Set™ Instant Adhesive, General-Purpose
- Loctite® 410™ Prism® Instant Adhesive, Black/Toughened
- Loctite® 414™ Super Bonder® Instant Adhesive
- Loctite® 416™ Super Bonder® Instant Adhesive
- Loctite® 422™ Super Bonder® Instant Adhesive
- Loctite® 454™ Prism® Instant Adhesive, Surface Insensitive Gel
- Loctite® 518™ Gasket Eliminator® Flange Sealant
- Loctite® 545™ Thread Sealant, Pneumatic/Hydraulic
- Loctite® QuickStix™ 548™ Gasket Eliminator® Flange Sealant
- Loctite® 554™ Thread Sealant, Refrigerant Sealant
- Loctite® QuickStix™ 561™ PST® Pipe Sealant
- Loctite® 564™ Thread Sealant, General-Purpose
- Loctite® 565™ PST® Thread Sealant, Controlled Strength
- Loctite® 567™ PST® Thread Sealant, High Temperature
- Loctite® 569™ Thread Sealant, Hydraulic Sealant
- Loctite® 5699™ Grey, High Performance RTV Silicone Gasket Maker
- Loctite® 587™ Blue, High Performance RTV Silicone Gasket Maker
- Loctite® 5900™ Flange Sealant, Heavy Body RTV Silicone
- Loctite® 5905™ Flange Sealant, RTV Silicone
- Loctite® 5910™ Flange Sealant, RTV Silicone
- Loctite® 592™ PST® Thread Sealant, Slow Cure
- Loctite® 5920™ Copper, High Performance RTV Silicone Gasket Maker
- Loctite® Superflex® Silicone Adhesive Sealant, Black
- Loctite® Superflex® Silicone Adhesive Sealant, White
- Loctite® Superflex® Silicone Adhesive Sealant, Clear
- Loctite® Superflex® Red High Temp RTV, Silicone Adhesive Sealant
- Loctite® 598™ Black, High Performance RTV Silicone Gasket Maker
- Loctite® 609™ Retaining Compound, Press Fit/General-Purpose
- Loctite® 620™ Retaining Compound, Slip Fit/High Temperature

- Loctite® 638™ Retaining Compound, Slip Fit/Maximum Strength
- Loctite® 641™ Retaining Compound, Press & Slip Fit/Controlled Strength
- Loctite® 660™ Quick Metal® Retaining Compound, Press Fit Repair
- Loctite® 680™ Retaining Compound, Slip Fit/High Strength
- Loctite® 712™ Tak Pak® Accelerator
- Loctite® 7649™ Primer N™
- Loctite® 770™ Prism® Primer
- Loctite® Aviation Gasket Sealant
- Loctite® Belt Dressing & Conditioner
- Loctite® Big Foot® Acrylic Pedestrian Grade
- Loctite® Big Foot® Heavy Duty Pedestrian Grade
- Loctite® Big Foot® Low Profile Pedestrian Grade
- Loctite® Big Foot® Vehicular Grade
- Loctite® Big Foot® Zero V.O.C.
- Loctite® QuickStix™ C5-A® Copper Anti-Seize
- Loctite® Chisel® Gasket Remover
- Loctite® Cold Galvanizing Compound
- Loctite® Color Guard®, Black
- Loctite® Color Guard®, Blue
- Loctite® Color Guard®, Red
- Loctite® Color Guard®, Yellow
- Loctite® Contact Adhesive, Yellow
- Loctite® Contact Adhesive, Black
- Loctite® Extend® Rust Treatment
- Loctite® Fixmaster® Aluminum Liquid
- Loctite® Fixmaster® Aluminum Putty
- Loctite® Nordbak® Brushable Ceramic, Grey
- Loctite® Nordbak® Brushable Ceramic, Red
- Loctite® Nordbak® Brushable Ceramic, White
- Loctite® Nordbak® Chemical Resistant Coating
- Loctite® Fixmaster® Deep Pour Grout
- Loctite® Fixmaster® Fast Cure Epoxy, Mixer Cups
- Loctite® Fixmaster® Poxypak™
- Loctite® Fixmaster® Fast Set Grout
- Loctite® Fixmaster® Fast Set Steel Epoxy
- Loctite® Fixmaster® Fast Set Steel Putty
- Loctite® Fixmaster® Floor Fill
- Loctite® Fixmaster® General-Purpose Epoxy, Mixer Cups
- Loctite® Fixmaster® High Performance Epoxy
- Loctite® Fixmaster® High Performance Quartz
- Loctite® Fixmaster® Magna-Crete
- Loctite® Fixmaster® Marine Chocking (Green)
- Loctite® Nordbak® Fast Cure Pneu-Wear
- Loctite® Nordbak® Pneu-Wear
- Loctite® Fixmaster® Stainless Steel Putty
- Loctite® Fixmaster® Steel Liquid
- Loctite® Fixmaster® Steel Putty
- Loctite® Fixmaster® Superior Metal

- Loctite® Fixmaster® Underwater Repair Epoxy
- Loctite® Fixmaster® Wear-Resistant Putty
- Loctite® Food Grade Anti-Seize
- Loctite® Food Grade Grease
- Loctite® Silicone Lubricant
- Loctite® Form-A-Thread® Stripped Thread Repair
- Loctite® Gasket Sealant 1
- Loctite® High Temperature Gasket Maker
- Loctite® H.V.A.C. Blue Pipe Joint Compound
- Loctite® 0151™ Hysol® Epoxy Adhesive, Ultra Clear
- Loctite® 608™ Hysol® Epoxy Adhesive, High Strength
- Loctite® 615™ Hysol® Epoxy Adhesive, Toughened
- Loctite® 907™ Hysol® Epoxy Adhesive
- Loctite® 9340™ Hysol® Epoxy Adhesive
- Loctite® E-00CL™ Hysol® Epoxy Adhesive, Low Odor
- Loctite® E-00NS™ Hysol® Epoxy Adhesive, Non-Sag
- Loctite® E-05CL™ Hysol® Epoxy Adhesive, Toughened
- Loctite® E-120HP™ Hysol® Epoxy Adhesive, Ultra Strength
- Loctite® E-20HP™ Hysol® Epoxy Adhesive, Fast Setting
- Loctite® E-20NS™ Hysol® Epoxy Adhesive, Metal Bonder
- Loctite® E-30CL™ Hysol® Epoxy Adhesive, Glass Bonder
- Loctite® E-40FL™ Hysol® Epoxy Adhesive, Flexible
- Loctite® E-60HP™ Hysol® Epoxy Adhesive, Toughened
- Loctite® E-60NC™ Hysol® Epoxy Adhesive, Electrically Noncorrosive
- Loctite® E-90FL™ Hysol® Epoxy Adhesive, Flexible
- Loctite® U-05FL™ Hysol® Urethane Adhesive, High Strength
- Loctite® U-10FL™ Hysol® Urethane Adhesive
- Loctite® Instant Gasket
- Loctite® Maintain® Lubricant Penetrant
- Loctite® Maxi-Coat™, Aerosol
- Loctite® Maxi-Coat™, Liquid
- Loctite® Natural Blue® Biodegradable Cleaner & Degreaser
- Loctite® Natural Blue® Biodegradable Cleaner & Degreaser, Fragrance-Free
- Loctite® No More Leaks™ Plastic Pipe Sealant
- Loctite® O-Ring Making Kit
- Loctite® Pipe Repair Kit
- Loctite® QuickStix™ Silver Grade Anti-Seize
- Loctite® Silver Grade Anti-Seize
- Loctite® Silver Grade Anti-Seize, Aerosol
- Loctite® Solvo-Rust® Super Penetrating Oil
- Loctite® Thread Sealant With PTFE
- Loctite® Urethane Sealant
- Loctite® ViperLube® Clear High Performance Synthetic Grease
- Loctite® ViperLube® High Performance Synthetic Grease
- Loctite® ViperLube® High Performance Synthetic Grease, Aerosol

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**FAQs**

[ Durometer Hardness ]

Durometer hardness is a property presented on Technical Data Sheets that shows how hard the resin is in the cured state. A durometer gauge is the actual measuring device consisting of a small drill or blunt indenter point under pressure. Different measurement scales are used for different materials depending on how soft or hard the material. The following chart compares three (3) different graduated measurement scales and relates hardness values to some common objects as well as Loctite® brand products.

SHORE A	SHORE D	ROCKWELL M	REFERENCE OBJECT	LOCTITE® PRODUCT
30	-	-	Art Gum Eraser	5140™
40	-	-	Pink Pearl Eraser	5900®
50	15	-	Rubber Stamp	-
60	-	-	Pencil Eraser	5699™
70	30	-	Rubber Heel	-
80	-	-	Rubber Sole	-
90	45	-	Typewriter Roller	366™
100	55	-	Pipe Stem	3106™
-	74	0	Textbook Cover	334™
-	78	32	Douglas Fir Plywood	-
-	82	63	-	E-60HP™
-	86	95	Hardwood Desktop	-
-	90	125	Glass or Formica	-

The higher the number within each scale, the harder the material. Shore readings are typically used for plastics. Shore A is for softer materials; Shore D is for harder materials. Rockwell M readings are typically used for metals.

[ Mathematical Conversions ]

The following are some common conversions that might be helpful when using Loctite® products:

- 1 milliliter (ml) = 1 cubic centimeter (cc)
- 1,000 ml = 1 liter
- 29.5 ml = 1 fl. oz.
- 3.78 liters = 1 gallon
- 473 ml = 1 pint
- 454 grams (g) = 1 lb.
- 947 ml = 1 quart
- 1 kilogram (k) = 2.2 lbs.
- *Weight to Volume:* grams ÷ specific gravity = cc (ml)
- *Volume to Weight:* cc (ml) x specific gravity = grams
- *Density* = specific gravity x 0.99823
- *Centipoises* = centistokes x density (at a given temperature)
- *Temperature:* degrees F - 32 x 0.556 = degrees C  
degrees C x 1.8 + 32 = degrees F
- Square Inches to Square Feet: ÷ by 144
- Square Feet to Square Inches: x by 144
- In./lbs. ÷ 12 = ft./lbs.
- Ft./lbs. x 12 = in./lbs.
- 16 in. oz. = 1 in. lb.
- 192 in. oz. = 1 ft. lb.

[ Area Coverage ]

*Flat Parts:*

Length x Width x Bondline Thickness x 16.4 = cc/ml requirement per part

*Non-threaded Cylindrical Parts:*

Diameter x Engagement Length x Bondline Thickness (on radius/per side)  
 x 3.14 x 16.4 = cc/ml requirement per part

*Potting/Encapsulating Applications:*

Area (3.14 x R<sup>2</sup>) x Potting Depth x 16.4 = cc/ml requirement per part

For no induced gap, make the bondline thickness figure 0.001 in.; 16.4 is a constant for converting cubic inches to cubic centimeters.



**HAVE A QUESTION NOT LISTED HERE?**

Loctite® Adhesives and Sealants Product Specialists are available to assist you with new product designs, or to help you re-engineer an existing application for improved performance and cost savings. They can also set up testing of your parts at the Henkel Customer Engineering Center. For application assistance, call **1-800-LOCTITE (562-8483)**; *within Canada, call 1-800-263-5043*; or, contact us through the web at [www.henkelna.com/loctite](http://www.henkelna.com/loctite).

**STRAIGHT FROM *The Source***

**[ Shelf Life ]**

***What is the Henkel shelf life policy for Loctite® branded products?***

The shelf life period for the majority of Loctite® branded products is indicated by the *use by* date on the package.

For optimal storage, maintain product at a temperature between 8°C (46°F) to 21°C (70°F). Storage below 8°C (46°F) or greater than 28°C (82°F) can adversely affect product properties. UNOPENED cyanoacrylate products must be stored under refrigerated conditions at 2°C (36°F) to 8°C (46°F). Storage below 2°C (36°F) or greater than 8°C (46°F) can adversely affect product properties. Unopened cyanoacrylate products should be brought to ambient temperature before the package is opened. Once opened, the product should be left at ambient temperature. Products requiring storage at conditions other than those specified here are labeled accordingly.

Material removed from containers may be contaminated during use. Do not return product to original containers. Henkel cannot assume responsibility for product that has been contaminated or stored under conditions other than as recommended. This policy supersedes all previous policies regarding shelf life and storage of Loctite® branded products.

Contact Customer Service at 1-800-LOCTITE (562-8483) if you need additional information.

**[ Viscosity ]**

Viscosity is a product property associated with all Loctite® adhesive/sealants. Viscosity is defined as a measure of the resistance of a fluid to flow (usually through a specific orifice). A measure of this fluid “thickness” is expressed in centipoise values. The higher the number, the thicker the product. Thicker products are less flowable and, in most cases, will fill a larger gap if necessary. The following chart relates viscosity to some products we are all familiar with:

PRODUCT	APPROXIMATE VISCOSITY IN CENTIPOISE (cP)	LOCTITE® CYANOACRYLATES	LOCTITE® ANAEROBICS
Water at 70°C	1 - 5	420™	–
Blood or Kerosene	10	–	290™
Antifreeze or Ethylene Glycol	15	406™	Letter Grade A
Motor Oil SAE 10 or Corn Oil	50 - 100	414™/496™	609™
Motor Oil SAE 30 or Maple Syrup	150 - 200	–	675™
Motor Oil SAE 40 or Castor Oil	250 - 500	4203™/4471™	640™
Motor Oil SAE 60 or Glycerin	1,000 - 2,000	403™/422™	222MS™/242®/262™
Corn Syrup or Honey	2,000 - 3,000	410™/4211™	635™
Blackstrap Molasses	5,000 - 10,000	411™/382™	277™/620™
Chocolate Syrup	10,000 - 25,000	–	324™/326™
Ketchup or Mustard	50,000 - 70,000	409™	330™
Tomato Paste or Peanut Butter	150,000 - 250,000	–	592™
Shortening or Lard	1,000,000 - 2,000,000	–	660™
Caulking Compound	5,000,000 - 10,000,000	–	593™
Window Putty	100,000,000	–	–

Some products are considered thixotropic. This describes materials that are gel-like at rest but fluid when agitated. Ketchup is a good example that exhibits this property. Loctite® thixotropic products include Loctite® 262™ Threadlocker and Loctite® 509™ Flange Sealant.

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**FOR DESIGN, ASSEMBLY,**  
**MANUFACTURING & MAINTENANCE**  
**ENGINEERING SERVICES**



■ Henkel Corporation offers complete engineering services for projects demanding expertise and support beyond the limits of our standard technical services. As a result, our engineers and scientists can quote the following value-added services:

- On-site engineering assistance
- Joint product development programs
- Prototype testing, fixture preparation and consultation
- Contract lab services and testing
- Custom formulations



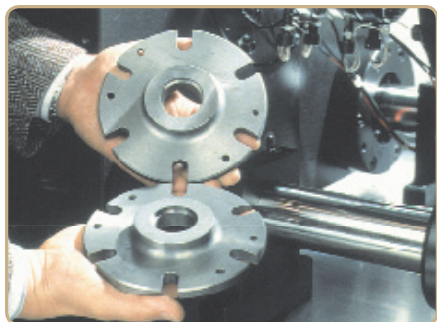
In today's volatile and fluid market landscape, a manufacturer's survival and success are directly related to its technical capability. Rapidly emerging, innovative processes and materials mandate an unprecedented breadth and depth of engineering savvy. Not every company can house the equipment and engineering staff necessary to compete in today's marketplace.

**THE ENGINEERING SERVICES GROUP OF HENKEL UNDERSTANDS THE NECESSITY OF PARTNERING WITH MANUFACTURERS AND SHARING THIS EXPERTISE WITH THE INDUSTRY THROUGH COST-EFFECTIVE, CUSTOM-TAILORED PROGRAMS.**

These programs range from specialized field teams that evaluate specifications and in-line process requirements, to the development of adhesives, and the design, construction and implementation of dispensing and curing systems. Whether you need competent recommendations on chemical properties, or a full-blown, turnkey process line, the engineering services group of Henkel can provide solutions through the seamless integration of mechanical, electrical, industrial manufacturing, and chemical engineering teams.

The Application Engineering Lab plays host to a battery of testing equipment. Here, experienced technicians conduct a multitude of tests, such as surface contamination, deforming, fixture, tensile and peel strengths.





## CUSTOM TEST FIXTURES AND PROTOCOLS CAN BE DEVELOPED TO MEET SPECIFIC END-USE REQUIREMENTS

Crucial in the engineering process is determining whether the customer's application and the adhesive criteria can withstand the gauntlet of rigorous strength tests performed by Henkel. Custom test fixtures and protocols can be developed to meet specific end-use requirements.



## OUR PROTOTYPING CAPABILITY PROVIDES VALUABLE DATA REGARDING THE FEASIBILITY OF FULL-SCALE MANUFACTURE

Engineers specializing in Loctite® products are frequently called upon to provide process simulations of customer parts on short production runs, such as gasketing. Our prototyping capability provides valuable data regarding the feasibility of full-scale manufacture.



## MANUFACTURERS CAN BE PROVIDED CONFIDENCE IN THE DURABILITY AND LONGEVITY OF AN ASSEMBLY IN THE FIELD

Our engineers can also create environmental conditions that simulate, and even exceed, the most severe conditions. With heat aging, salt fog, humidity and thermal cycling chambers, manufacturers can be provided with confidence in the durability and longevity of an assembly in the field.

### TAKE ADVANTAGE OF OUR RESOURCES

To access these and other Engineering Services, contact our Adhesives and Sealants Specialists at **1-800-LOCTITE (562-8483)**. Immediate technical assistance is available from 8 am to 5 pm EST.

— **STRAIGHT FROM** *The Source* —

*Your Source for*  
**LOCTITE® PRODUCTS**  
**FOR DESIGN, ASSEMBLY,**  
**MANUFACTURING & MAINTENANCE**  
**OEM TRAINING SERVICES**



- Educate your engineers on how to cut costs, improve quality and increase production through the integration of adhesives into the new product design process.
- Each instructional event touches on the wide array of Loctite® product solutions including adhesives and sealants, dispensing and curing equipment, as well as the unmatched technical support of our product specialists.

PRODUCT WORKSHOPS

**Loctite® OEM Workshop**

Full or half-day on-site product training customized to address specific design needs at your manufacturing location.

**Loctite® OEM Customer Training School**

Full or half-day off-site training designed specifically for design, process, material and manufacturing engineers responsible for assemblies involving the use of adhesives.

INDUSTRY WORKSHOPS

**Designing Pumps with Adhesives Seminar**

Two- to four-hour training on adhesives, coatings, lubricants and the performance improvements that their implementation provides to pump manufacturers.

**Designing Electric Motors with Adhesives Seminar**

This half-day seminar reviews in detail the many ways motor manufacturers are using adhesives and sealants to improve performance, reduce costs and enhance manufacturability. The seminar includes many hands-on demonstrations and real-world case histories.

**Medical Advanced Workshop**

A four- to seven-hour off-site program providing solutions to medical device manufacturers on design and assembly challenges. The workshop is designed specifically for material, manufacturing and design engineers, and includes hands-on demonstrations of adhesives and equipment.

**Medical Technology On-Site Seminar**

Select from a menu of seven of the most requested medical device adhesive topics or create a customized seminar to meet your specific requirements. Courses are conducted at your location, and include instruction, hands-on demonstrations, samples, and technical guides.

**HENKEL OFFERS MANY OTHER WORKSHOPS WHICH CAN BE CUSTOMIZED TO PROVIDE LOCTITE® TRAINING FOR VARIOUS INDUSTRIES AND DEVICES.**

SERVICES

**Plant Survey**

A detailed manufacturing process evaluation performed by a Loctite® Adhesives and Sealants Specialist to identify and document potential cost savings and process improvements.



*Your Source for*  
**LOCTITE® PRODUCTS**  
 FOR DESIGN, ASSEMBLY,  
 MANUFACTURING & MAINTENANCE  
**MRO TRAINING SERVICES**

- All of the following services will teach your maintenance personnel how to save time, reduce costs, improve safety in your plant, and increase the reliability of your equipment.

PRODUCT WORKSHOPS

**Loctite® Maintenance Workshop**

Two hours of on-site product training customized to your facility's needs. Optional cost documentation process available.

**Loctite® Pump Rebuild Workshop**

Two- to four-hours of product training on how Loctite® products can improve pump reliability and reduce common failures. Includes pump rebuild manual.

**Loctite® Maintenance Customer Training School**

Full- or half-day product training with review of common maintenance challenges and the appropriate Loctite® product solutions.

MANUFACTURING RELIABILITY TRAINING

**Manufacturing Reliability Training (MRT)**

Four hours of CEU-accredited training on mechanical basics, failure fundamentals and the role of machinery adhesives in equipment reliability. Includes training manual and product tool kit.

SERVICES

**Documented Cost Savings**

Offers a process for validating and documenting cost savings realized as a result of Loctite® Workshops or Maintenance Reliability Training.

**Engineering Assistance**

Henkel offers many other services including air leak surveys, pump rebuild assistance and flooring application assistance. In addition, Henkel offers an optional cost documentation process with the MRT programs and Maintenance Workshop listed above.