LOCTITE®

BEYOND *THE BOND*

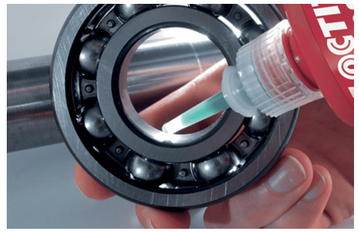
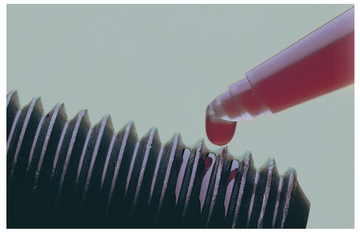
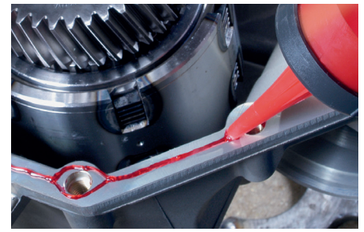
The Adhesive Sourcebook

Your Source for

LOCTITE® PRODUCTS FOR DESIGN, ASSEMBLY, MANUFACTURING AND MAINTENANCE

Henkel

Henkel Adhesive Technologies

Why Adhesives?

Welcome to The Adhesive Sourcebook. This comprehensive guide to LOCTITE® products is designed to simplify your adhesive selection process. Each section includes helpful decision trees, product descriptions, properties charts, and related dispensing equipment to provide you with a total solution.

Over 100 years of success, we have since become a global leader in adhesive technologies, revolutionizing transportation and manufacturing, and impacting more than 800 industries worldwide. Our adhesive solutions have contributed to iconic projects, such as space voyages, and the restoration of the Great Wall of China and Tutankhamun's mask.

BENEFITS OF ADHESIVES

LOCTITE® adhesives are a superior alternative to mechanical fastening and joining methods for almost every application. Here are a few examples:

- Join dissimilar substrates, e.g., plastics, metals, etc.
- Distribute stresses evenly
- Fill large gaps
- Seal, bond and protect parts
- Improve cosmetic appearance
- Easily automate manufacturing processes
- Promote a competitive advantage
- Improve reliability, quality
- Reduce overall production costs

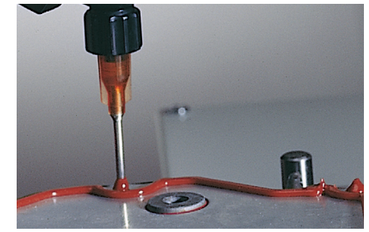
BACKED BY HENKEL

For over 100 years, Henkel Adhesive Technologies have changed industries through innovative solutions. Our promise has been the same: we continue to innovate forward each and every day:

Sustainability: Our innovative products aim to drive a sustainable future. We're committed to reducing our carbon footprint and leading by example with every step we take. By 2030, we aim to be the first carbon-positive global adhesives manufacturer.

Innovation: We push the boundaries with new ideas and build upon our portfolio of adhesives, sealants, and functional coatings. We're your global partner, prepared to handle any challenge, and develop a solution that is smart and sustainable — together with you. For the better.

Digitalization: Through advanced software and technology solutions, we are able to bring ourselves even closer to the science behind our work. Using our proprietary data analytics and testing platforms, we can monitor our results in real time and create transparency about our research.



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

ADDITIONAL RESOURCES AVAILABLE

The Adhesive Sourcebook is supported by technical product assistance over the phone and on the web.

On the Phone

1-800-LOCTITE (562-8483) – U.S.
1-800-263-5043 – Canada

Immediate technical assistance is available from 8 a.m. to 5 p.m. ET, Monday through Friday.

Technical Product Assistance

Application Assistance – Receive local application assistance from the Henkel Adhesive and Sealant Specialist in your area.

Website

next.henkel-adhesives.com

In addition to support from your local representative, our website, **next.henkel-adhesives.com**, is your source for locating distributors, safety and technical data sheets, literature and product application assistance. Here is a brief overview of what our website has to offer:

Product Materials – Gain quick and easy access to product descriptions, approvals/specifications, application suggestions, package specifications, technical and material safety data sheets, and more.

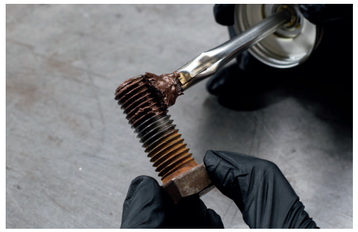
Application Assistance – Application assistance aids in narrowing the range of products suitable for your design and maintenance needs. Or send a message to your local Adhesive and Sealant Specialist to arrange "in-person" assistance.

Distributor Locator – Find a local distributor in the U.S. or Canada that has the product you need. All it takes is a zip or postal code.

Data Sheets & Literature – Instant access to Technical Data Sheets and Material Safety Data Sheets. View electronic versions of our design guides, bonding guides, quick reference tools and other special literature.

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

At Henkel Corporation, we invent more than just quality LOCTITE® products. We provide solutions to industry's biggest challenges. Whether we are reducing assembly cost, providing design and application assistance, or increasing the reliability of your process, Henkel is dedicated to earning and keeping the trust of its customers. Through this philosophy, Henkel has assumed a position of worldwide leadership.



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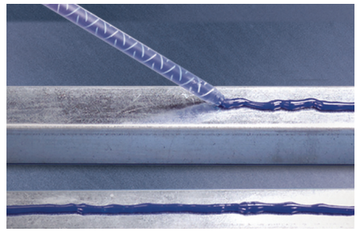

Bonding

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WHY BOND ASSEMBLIES?

The use of adhesives can provide a great alternative to many of the industry failures we see today. For successful bonding, knowledge of adhesive methodology is essential. The most frequent causes for adhesive failure do not involve adhesive strength. Rather, they are attributed to inadequate preparation of the substrates and improper adhesive selection. The most important factor in proper adhesive selection is assessing the environment the adhesive must withstand. Once the environmental factors have been recognized, adhesive selection becomes more easily defined because other factors – such as joint design, substrates, load and stress cycles – can often be varied or altered with minor design changes.

BONDING

Adhesive bonding is a process in which two similar or dissimilar materials are united permanently. Adhesives build "bridges" between the surfaces of substrates to be joined.

ADVANTAGES OF ADHESIVE BONDING COMPARED TO CONVENTIONAL JOINING METHODS:

- More uniform stress distribution over the entire bond face: This has a very positive effect on the static and dynamic strength achieved. Where welding and riveting result in localized stress peaks, adhesive bonding achieves uniform distribution and absorption of stress loads.
- No change in surface and texture of the joined materials: Welding temperatures may change the texture and, therefore, the mechanical properties of materials. In addition, welding, riveting and bolting all affect the visual appearance of the parts.
- Weight saving: Adhesives are particularly popular for light-weight constructions, where thin-walled parts (wall thickness < 0.5 mm) must be joined.
- Sealed joints: Adhesives also act as sealants, preventing loss of pressure or liquids, blocking the penetration of condensation water and protecting against corrosion.
- Joins dissimilar materials and reduces the risk of corrosion: The adhesive forms an insulating film to prevent contact corrosion when different types of metals are joined. It also acts as electrical and thermal insulator.

PERFORMANCE CONSIDERATIONS	ADHESIVE CATEGORY								
	CYANOACRYLATES	EPOXIES	HOT MELTS	LIGHT CURE	SILICONES	ELASTOMERS	URETHANES	2-PART ACRYLICS	2-STEP ACRYLICS
BENEFITS	Wide range of bonding applications/ ease of use	Wide range of formulations	Versatile, fast, large gap filling	Rapid cure/ adhesion to plastics/bond on demand	Excellent temperature resistance	Flexible, paintable, bonder/sealant	Excellent toughness/ flexibility	Good impact resistance/ flexibility	Good impact resistance/ no-mix
LIMITATIONS	Low polar solvent resistance	Mixing required	Limited heat resistance	Light cure required	Low adhesion resistance	High temperature resistance	Sensitive to moisture	Mixing required	Primer required
TEMPERATURE RESISTANCE									
Typical for the category	-65ºF to 210ºF (-54˚C to 99˚C)	-65ºF to 180ºF (-54˚C to 82˚C)	-65ºF to 250ºF (-54˚C to 121˚C)	-65ºF to 300ºF (-54˚C to 149˚C)	-65ºF to 400ºF (-54˚C to 204˚C)	-65ºF to 200ºF (-54˚C to 93˚C)	-65ºF to 250ºF (-54˚C to 121˚C)	-65ºF to 250ºF (-54˚C to 121˚C)	-65ºF to 300ºF (-54˚C to 149˚C)
Highest rated product	250ºF (121˚C)	400ºF (204˚C)	330ºF (166˚C)	356ºF (180˚C)	725ºF (385˚C)	200ºF (93˚C)	300ºF (149˚C)	250ºF (121˚C)	400ºF (204˚C)
ENVIRONMENTAL RESISTANCE									
Polar Solvents *(EX.: H_2O, ETHYLENE GLYCOL, ISOPROPYL ALCOHOL [IPA], ACETONE)*	Poor[1]	Very Good	Good	Good	Good	Good	Good	Good	Good
Nonpolar Solvents *(EX. MOTOR OIL, TOLUENE, GASOLINE, ATF)*	Good	Excellent	Good	Very Good	Poor to Fair	Poor	Good	Very Good	Very Good
ADHESION TO SUBSTRATES									
Metals	Very Good	Excellent	Good	Good	Good	Very Good	Good	Excellent	Excellent
Plastics[2]	Excellent	Fair	Very Good	Excellent	Fair	Good	Very Good	Excellent	Fair
Glass	Poor	Excellent	Good	Excellent	Very Good	Good	Good	Good	Excellent
Rubber	Very Good	Fair	Fair	Fair	Good	Poor	Good	Poor	Poor
Wood	Good	Very Good	Excellent	Poor	Fair	Very Good	Fair	Good	Good
OVERLAPPING SHEAR STRENGTH	High	High	Low	High	Low	Medium	Medium	High	High
PEEL STRENGTH	Low[3]	Medium	Medium	Medium	Medium	Medium	Medium	High	Medium
TENSILE STRENGTH	High	High	Low	High	Medium	Medium	Medium	High	High
ELONGATION/FLEXIBILITY	Low	Low	High	Medium	High	High	High	Medium	Medium
HARDNESS	Rigid	Rigid	Semisoft	Semirigid	Soft	Soft	Soft	Semirigid	Semirigid

PROCESS CONSIDERATIONS	ADHESIVE CATEGORY								
	CYANOACRYLATES	EPOXIES	HOT MELTS	LIGHT CURE	SILICONES	ELASTOMERS	URETHANES	2-PART ACRYLICS	2-STEP ACRYLICS
NUMBER OF COMPONENTS	1 or 2	2	1	1	1 or 2	1 or 2	1 or 2	2	2
CURE TEMPERATURE	Room Temperature	Room Temperature	Room Temperature[4]	UV/Visible	Room Temperature	Room Temperature	Room Temperature	Room Temperature	Room Temperature
FIXTURE TIME									
Average	30 seconds	20 minutes	70 seconds	30 seconds	25 minutes	25 minutes	25 minutes	20 minutes	5 minutes
Fastest	<5 seconds	3 to 5 minutes	20 seconds	<5 seconds	2 minutes	10 minutes	5 minutes	3 to 5 minutes	30 seconds
FULL CURE TIME	24 hours	12 to 24 hours	1 hour (or when cooled)[5]	30 to 60 seconds	1 to 7 days	1 to 7 days	24 hours	24 hours	24 hours
GAP FILL									
Ideal (in inches)	0.001 to 0.010	0.004 to 0.006	0.002 to 0.005	0.002 to 0.010	0.001 to 0.006	0.001 to 0.006	0.004 to 0.006	0.010 to 0.040	0.002 to 0.004
Maximum (in inches)	0.200	0.125	0.240	0.25	0.25	0.24	0.125	0.5	0.040
DISPENSING/MIXING EQUIPMENT REQUIRED	NO	YES	YES	NO	NO	NO	YES	YES	NO
LIGHT CURE VERSIONS AVAILABLE	YES	YES	NO	YES	YES	NO	NO	NO	YES

[1] Cyanoacrylates have very good moisture resistance on plastics.
[2] Uncured liquid adhesives may cause stress cracking of certain thermoplastics, e.g., polycarbonate, acrylic and polysulfone. Special products and process techniques are available. Consult the LOCTITE® Design Guide to Bonding Plastics (LT-2197) or contact 1-800-LOCTITE (562-8483) for more information.
[3] Exception: Toughened cyanoacrylates have HIGH peel strength.
[4] Elevated temperatures are required to dispense liquid Hot Melt Adhesives.
[5] Urethane Hot Melts require 24 hours for full cure.

PLEASE NOTE: This chart should not be used to specify products without specific testing. It is recommended that you conduct on-part testing to ensure product performance before specifying any adhesive.

ADDITIONAL RESOURCES

Find additional resources, including case studies, white papers and more on our Instant Component Bonding page through our website.

ADDITIONAL RESOURCES

Cyanoacrylate Adhesives

- One-component, no-mix products that cure rapidly at room temperature without heat or light – exceptionally easy to use
- Excellent bond strengths to the widest range of plastics, rubbers and metals
- Widest selection of products, including specialty grades suitable for applications where impact resistance, flexibility, gap filling, low odor or extremely fast curing is required

Your Application — WHAT TYPE OF MATERIAL ARE YOU BONDING?

- Low Surface Energy Plastics (PP, PE, Acetal, PTFE, etc.) → Use Primer with Premium CAs
- All Other Materials (Except Glass)
  - Ultra Performance/ High Temperature Resistance → Low Viscosity
  - Premium/Surface Insensitive CAs (Bond very well to most materials) → Low Viscosity / Non-Sag Gel
  - Low Odor/Low Bloom CAs (For cosmetic & odor sensitive applications) → Medium Viscosity / Non-Sag Gel
  - Light Cure CAs – Rapid Cure (Provide extremely fast cure speeds) → Low Viscosity / Medium Viscosity
  - Toughened/Impact Resistant CAs (For applications with vibration & shock) → 1-Part
  - Highly Flexible CA (for flexing bond lines) → Low Viscosity
  - 2-Part CA (For high gap applications) → Non-Sag Gel
  - Rubber Bonding CA → Low Viscosity
  - CA Accelerators (Speeds cure of exposed CAs) → Use Accelerator with Premium CAs

Solution

	SF 770™	402™	401™	454™	403™	455™	4310™	4311™	435™	4902™	3092™	404®	SF 7452™
Color	Clear	Clear	Clear	Clear	Clear/Light Straw	Clear/Light Straw	Clear/Pale Green	Clear/Pale Green	Clear	Clear	Clear	Clear	Clear/Amber
Gap Fill (in.)	N/A	0.005	0.005	0.01	0.008	0.01	0.004	0.008	0.006	0.005	0.2	0.005	N/A
Viscosity (cP)	1.25	110	90	Gel	1,200	Gel	175	1,050	175	200	Gel	80	0.4
Shear Strength* (psi)	N/A	3,200	2,900	3,030	2,940	1,405	3,190**	3,760**	2,700	1,745	3,200	3,500	N/A
Temperature Range	N/A	-65°F (-54°C) to 180°F (82°C)	-65°F (-54°C) to 250°F (121°C)	-65°F (-54°C) to 250°F (121°C)	-65°F (-54°C) to 212°F (100°C)	-65°F (-54°C) to 212°F (100°C)	-65°F (-54°C) to 200°F (93°C)	-65°F (-54°C) to 200°F (93°C)	-65°F (-54°C) to 225°F (107°C)	-65°F (-54°C) to 180°F (82°C)	-4°F (-20°C) to 176°F (80°C)	-65°F (-54°C) to 180°F (82°C)	N/A
Fix Time (sec.)	N/A	20	5	15	20	60	<5†	<5†	30	20	15 sec.‡ 3.5 min.¥	30	N/A

Product Description

LOCTITE® SF 770™ Primer
A heptane-based adhesion promoter formulated for use with polyolefins and other low surface energy plastics. Use with LOCTITE® Premium Surface Insensitive CAs. Fast dry time and good on part life.

IDH	Package Size
2759219	1.75 fl. oz. bottle
2765218	16 fl. oz. can

LOCTITE® 402™ Instant Adhesive
A fast-fixturing, ultra-performance instant adhesive that provides reliable performance under extreme operating temperatures up to 135°C (275°F). It is suitable for use in medical device assembly.

IDH	Package Size
2714628	20 g bottle
2712746	500 g bottle

LOCTITE® 401™ Instant Adhesive
Low viscosity surface insensitive CA provides excellent bond strengths to most materials including plastics, elastomers metals and platings. Excellent for dry or acidic conditions.

IDH	Package Size
233641	3 g tube
135429	20 g bottle
135430	1 lb. bottle
229586	2 kg bottle

LOCTITE® 454™ Instant Adhesive
Surface insensitive CA providing excellent bond strengths to many materials including plastics, elastomers, metals and platings. Excellent for dry or acidic conditions. Non sag gel prevents drips.

IDH	Package Size
233998	3 g tube
231346	10 g syringe
135462	20 g tube
1337712	30 g syringe
234004	200 g tube
88525	300 g cartridge
680522	850 g cartridge

LOCTITE® 403™ Instant Adhesive
Low odor, low blooming CA well suited for cosmetic applications or where vapor ventilation is difficult. Surface insensitive, providing excellent bond strengths to most materials.

IDH	Package Size
135433	20 g bottle
233675	1 lb. bottle

LOCTITE® 455™ Instant Adhesive
Low odor, low blooming CA well suited for cosmetic applications or where vapor ventilation is difficult. Surface insensitive, providing excellent bond strengths to most materials. Non sag gel prevents drips.

IDH	Package Size
231525	10 g syringe
135258	200 g tube
230317	850 g cartridge

LOCTITE® 4310™ Light Cure Adhesive
Light cure CA cures where light reaches and also in shadowed areas via surface moisture. Toughened, fluorescent adhesive that cures tack-free in 2-5 seconds. Lower viscosity for tighter bond lines.

IDH	Package Size
1401792	1 oz. bottle
1401790	1 lb. bottle

LOCTITE® 4311™ Light Cure Adhesive
Light cure CA cures where light reaches and also in shadowed areas via surface moisture. Toughened, fluorescent adhesive that cures tack-free in 2-5 seconds. Higher viscosity to minimize dripping.

IDH	Package Size
1401791	1 oz. bottle
1401789	1 lb. bottle

LOCTITE® 435™ Instant Adhesive
Low viscosity toughened CA with increased flexibility, peel strength and resistance to shock. Surface insensitive, providing excellent bond strengths to most materials.
CFIA Listed.

IDH	Package Size
840057	20 g bottle
840071	1 lb. bottle

LOCTITE® 4902™ Instant Adhesive
Highly flexible CA with elongations over 100%, designed for highly flexing bond lines.

IDH	Package Size
1875841	20 g bottle
1875842	1 lb. bottle

LOCTITE® 3092™ Instant Adhesive
Fast two-part CA bonds gaps up to 0.2 in. (2 mm). Particularly suited for bonding plastics, rubbers, wood, paper and metals. High precision dispensing tips.

IDH	Package Size
1807961	10 g syringe with 3 mix nozzles

LOCTITE® 404® Instant Adhesive
Excellent for bonding rubbers where very fast fixturing is required. For general maintenance and repair.

IDH	Package Size
135465	1/3 oz. bottle
234044	4 oz. bottle
234046	1 lb. bottle

LOCTITE® SF 7452™ Accelerator
Used where increased cure speed of LOCTITE® CAs is required. Can either be pre- or post-applied.

IDH	Package Size
276353	1.75 fl. oz. brush-top bottle
276219	1.75 fl. oz. spray-cap bottle
2761488	0.7 fl. oz. metered mist
276352	1 gallon can

* Grit-blasted steel.
** Polycarbonate to polycarbonate.
† Full cure = 24 hours without UV exposure.
‡ At 0.002 in. gap.
¥ At 0.200 in. gap.

LOCTITE® 402™ is a fast-fixturing, ultra-performance instant adhesive that provides reliable performance under extreme operating temperatures up to 275°F. It is suitable for use in medical device assembly.

- Ultra-performance adhesive providing high temperature resistance (up to 275°F) with fast fixture
- Tested to Henkel's ISO-10993 biocompatibility protocols
- Ideal for quick repairs as well as high speed production applications
- Unique, patented formula with reduced hazardous ingredients

Cyanoacrylate Adhesives

LOCTITE® Cyanoacrylate Adhesive Properties Chart

LOCTITE® PRODUCT			IDH NUMBER	PACKAGE TYPE/SIZE	TYPICAL USE	COLOR	GAP FILL (INCHES)	CATEGORY	VISCOSITY (cP)	SHEAR STRENGTH* (psi)	TEMPERATURE RANGE	CURE SPEED**	SPECIFIC GRAVITY	AGENCY APPROVALS
ULTRA PERFORMANCE		402™	2714628 2712746	20 g bottle 500 g bottle	High temperature resistance	Clear	0.005	Ethyl/ Allyl	110	3,200 on GBMS	-65°F (-54°C) to 275°F (135°C)	Fixture - 5 sec. Full - 24 hrs.	1.10	ISO 10993
GENERAL-PURPOSE	SURFACE INSENSITIVE	401™	233641 135429 135430 229586	3 g tube 20 g bottle 1 lb. bottle 2 kg bottle	General-purpose	Clear	0.005	Ethyl	90	2,900	-65°F (-54°C) to 250°F (121°C)	Fixture - 5 sec. Full - 24 hrs.	1.05	CFIA Listed
		406™	135436 237295	20 g bottle 1 lb. bottle	Wicking grade	Clear	0.004	Ethyl	20	2,250	-65°F (-54°C) to 250°F (121°C)	Fixture - 10 sec. Full - 24 hrs.	1.05	Commercial item std. A-A-3097
		431™	868371 868372	20 g bottle 1 lb. bottle	Gap filling	Clear	0.008	Ethyl	900	2,300	-65°F (-54°C) to 180°F (82°C)	Fixture - 15 sec. Full - 24 hrs.	1.10	ISO 10993
		454™	233998 231346 135462 1337712 234004 88525 680522	3 g tube 10 g syringe 20 g tube 30 g syringe 200 g tube 300 g cartridge 4 g bottle	Porous surfaces	Clear	0.010	Ethyl	Gel	3,030	-65°F (-54°C) to 250°F (121°C)	Fixture - 15 sec. Full - 24 hrs.	1.05	CFIA, ABS, Commercial item std. A-A-3097
LOW ODOR / LOW BLOOM	SURFACE INSENSITIVE	455™	231525 135258 230317	10 g syringe 200 g tube 850 g cartridge	Porous surfaces	Clear/Light Straw	0.010	Alkoxy	Gel	1,405	-65°F (-54°C) to 212°F (100°C)	Fixture - 60 sec. Full - 24 hrs.	1.10	N/A
		403™	135433 233675	20 g bottle 1 lb. bottle	Gap filling	Clear/Light Straw	0.008	Alkoxy	1,200	2,940	-65°F (-54°C) to 212°F (100°C)	Fixture - 20 sec. Full - 24 hrs.	1.10	N/A
		408™	135441 233742	20 g bottle 1 lb. bottle	Wicking grade	Clear/Light Straw	0.002	Alkoxy	5	3,020	-65°F (-54°C) to 212°F (100°C)	Fixture - 20 sec. Full - 24 hrs.	1.05	N/A
		460™	135463 234020	20 g bottle 1 lb. bottle	Close-fitting parts	Clear/Light Straw	0.004	Alkoxy	45	3,060	-65°F (-54°C) to 212°F (100°C)	Fixture - 15 sec. Full - 24 hrs.	1.10	N/A
LIGHT CURE		4306™	487909 487921	1 oz. bottle 1 lb. bottle	Close-fitting parts	Clear/Pale Green	0.004	Ethyl	20	2,000‡	-65°F (-54°C) to 180°F (82°C)	Fixture <5 sec.¥	1.10	ISO 10993
		4307™	487920 487922	1 oz. bottle 1 lb. bottle	General Purpose	Clear/Pale Green	0.008	Ethyl	900	2,060 on PC	-65°F (-54°C) to 180°F (82°C)	Fixture < 5 sec.	1.06	ISO 10993
	TOUGHENED	4310™	1401792 1401790	1 oz. bottle 1 lb. bottle	Close-fitting parts	Clear/Pale Green	0.005	Ethyl	175	3,190‡	-65°F (-54°C) to 240°F (116°C)	Fixture <5 sec.¥	1.05	ISO 10993
		4311™	1401791 1401789	1 oz. bottle 1 lb. bottle	Gap filling	Clear/Pale Green	0.008	Ethyl	1,050	3,260‡	-65°F (-54°C) to 200°F (93°C)	Fixture <5 sec.¥	1.15	ISO 10993
FLEXIBLE		4902™	1875841 1875842	20 g bottle 1 lb. bottle	Flexing bond lines	Clear	0.004	Ethyl	200	1,745	-65°F (-54°C) to 180°F (82°C)	Fixture - 15 sec. Full - 24 hrs.	1	ISO 10993
TOUGHENED		380™	232834 135423 135424	3 g tube 1 oz. bottle 1 lb. bottle	Close-fitting parts	Black	0.006	Ethyl	300	3,750	-65°F (-54°C) to 225°F (107°C)	Fixture - 90 sec. Full - 24 hrs.	1.10	CFIA Listed
		410™	233757 135444 135445	3 g tube 20 g bottle 1 lb. bottle	Gap filling	Black	0.008	Ethyl	3,500	3,200	-65°F (-54°C) to 225°F (107°C)	Fixture - 90 sec. Full - 24 hrs.	1.07	CFIA Listed
		426™	231339 229732 219289	10 g syringe 20 g tube 300 g cartridge	Porous surfaces	Black	0.010	Ethyl	Gel	3,000	-65°F (-54°C) to 210°F (99°C)	Fixture - 20 sec. Full - 24 hrs.	1.10	N/A
		480™	135466 234048	20 g bottle 1 lb. bottle	Close-fitting parts	Black	0.006	Ethyl	200	3,800	-65°F (-54°C) to 180°F (82°C)	Fixture - 90 sec. Full - 24 hrs.	1.10	N/A
		411™	233768 135446 135447 233774	3 g tube 20 g bottle 1 lb. bottle 2 kg bottle	Gap filling	Clear	0.008	Ethyl	5,000	3,200	-65°F (-54°C) to 210°F (99°C)	Fixture - 30 sec. Full - 24 hrs.	1.07	N/A
	SURFACE INSENSITIVE	435™	840057 840071	20 g bottle 1 lb. bottle	General-purpose	Clear	0.006	Ethyl	175	2,700	-65°F (-54°C) to 225°F (107°C)	Fixture - 30 sec. Full - 24 hrs.	1.10	ISO 10993 CFIA Listed
		438™	840073	20 g bottle	General-purpose	Black	0.006	Ethyl	200	2,800	-65°F (-54°C) to 225°F (107°C)	Fixture - 30 sec. Full - 24 hrs.	1.10	N/A
2-PART GAP FILL		3092™	1807961	10 g syringe with 3 mix nozzles	High gap filling plastic bonder	Clear	0.2	Ethyl	Gel	3,200	-4°F (-20°C) to 176°F (80°C)	Fixture 0.002" gap - 15 sec. 0.200" gap -3.5 min. Full - 24 hrs.	1.05	N/A

** Varies with substrates.
‡ Data generated using polycarbonate.
¥ Full Cure = 24 hours without UV exposure. (With UV exposure, see Technical Data Sheets.)
/ Contains LOCTITE® 382™ Instant Adhesive (20 g bottle), LOCTITE® 7452™ Accelerator (0.7 oz. net wt. aerosol can).
// Contains LOCTITE® 444™ Instant Adhesive (20 g bottle), LOCTITE® 7452™ Accelerator (1.75 fl. oz. liquid brush-top bottle).

LOCTITE® Cyanoacrylate Adhesive Properties Chart

LOCTITE® PRODUCT		IDH NUMBER	PACKAGE TYPE/SIZE	TYPICAL USE	COLOR	GAP FILL (INCHES)	CATEGORY	VISCOSITY (cP)	SHEAR STRENGTH* (psi)	TEMPERATURE RANGE	CURE SPEED**	SPECIFIC GRAVITY	AGENCY APPROVALS
TOUGHENED THERMALLY RESISTANT	4204™	1376969 172544 231944	20 g bottle 20 g tube 1 lb. bottle	Gap filling	Clear	0.008	Ethyl	4,000	2,400	-65°F (-54°C) to 250°F (121°C)	Fixture - 75 sec. Full - 24 hrs.	1.10	N/A
	4205™	232840 244567	20 g tube 200 g tube	Porous surfaces	Clear	0.010	Ethyl	Gel	2,300	-65°F (-54°C) to 250°F (121°C)	Fixture - 90 sec. Full - 24 hrs.	1.10	N/A
GENERAL-PURPOSE	382™	2765048 135425	20 g kit/ 20 g bottle	Gap filling and ultra-performance wire tracking	Clear	0.008	Ethyl	5,000	3,200	-65°F (-54°C) to 210°F (99°C)	Fixture - 30 sec. Full - 24 hrs.	1.05	N/A
	404®	135465 234044 234046	1/3 oz. bottle 4 oz. bottle 1 lb. bottle	Rubber O-ring bonder	Clear	0.005	Ethyl	80	3,500	-65°F (-54°C) to 180°F (82°C)	Fixture - 30 sec. Full - 24 hrs.	1.09	ABS, CFIA Listed, Commercial item std. A-A-3097
	409™	233744 135442 229654 233756	3 g tube 20 g tube 300 g cartridge 10 kg pail	General-purpose gel	Clear	0.010	Ethyl	Gel	3,200	-65°F (-54°C) to 180°F (82°C)	Fixture - 75 sec. Full - 24 hrs.	1.10	N/A
	414™	233780 233801 233803	3 g tube 1 oz. bottle 1 lb. bottle	Plastic bonder	Clear	0.006	Ethyl	110	3,200	-65°F (-54°C) to 180°F (82°C)	Fixture - 20 sec. Full - 24 hrs.	1.05	CFIA Listed, Commercial item std. A-A-3097
	415™	135449 233842	1 oz. bottle 1 lb. bottle	Gap filling metal bonder	Clear	0.008	Methyl	1,500	3,600	-65°F (-54°C) to 180°F (82°C)	Fixture - 30 sec. Full - 24 hrs.	1.09	Commercial item std. A-A-3097
	416™	135452 209589	1 oz. bottle 1 lb. bottle	Gap filling plastic bonder	Clear	0.008	Ethyl	1,500	3,200	-65°F (-54°C) to 180°F (82°C)	Fixture - 30 sec. Full - 24 hrs.	1.05	CFIA Listed, Commercial item std. A-A-3097
	420™	135455 233914	1 oz. bottle 1 lb. bottle	Wicking type plastic bonder	Clear	0.002	Ethyl	2	2,900	-65°F (-54°C) to 180°F (82°C)	Fixture - 20 sec. Full - 24 hrs.	1.05	Commercial item std. A-A-3097
	422™	233927 233929	1 oz. bottle 1 lb. bottle	Gap filling plastic bonder	Clear	0.008	Ethyl	2,500	3,200	-65°F (-54°C) to 180°F (82°C)	Fixture - 30 sec. Full - 24 hrs.	1.09	CFIA Listed, Commercial item std. A-A-3097
	430™	233973 233978 233980	3 g tube 1 oz. bottle 1 lb. bottle	Metal bonder for close-fitting parts	Clear	0.005	Methyl	80	3,600	-65°F (-54°C) to 180°F (82°C)	Fixture - 30 sec. Full - 24 hrs.	1.09	Commercial item std. A-A-3097
	444™	135241 2765047 228354	20 g bottle .70 oz. Tak Pak// 1 lb. bottle	Wire tacking	Clear	0.007	Ethyl	700	3,200	-65°F (-54°C) to 180°F (82°C)	Fixture - 30 sec. Full - 24 hrs.	1.05	Commercial item std. A-A-3097
	495™	234072 135467 209591	3 g tube 1 oz. bottle 1 lb. bottle	General-purpose	Clear	0.004	Ethyl	45	2,060	-65°F (-54°C) to 250°F (121°C)	Fixture - 5 sec. Full - s24 hrs.	1.05	Commercial item std. A-A-3097
	496™	234156 209747	1 oz. bottle 1 lb. bottle	General-purpose rubber bonder	Clear	0.005	Methyl	125	3,600	-65°F (-54°C) to 180°F (82°C)	Fixture - 30 sec. Full - 24 hrs.	1.09	Commercial item std. A-A-3097
	498™	135469 142607 229817	1 oz. bottle 1 lb. bottle 2 kg bottle	Thermal cycling	Clear	0.007	Ethyl	500	3,000	-65°F (-54°C) to 180°F (82°C)	Fixture - 50 sec. Full - 24 hrs.	1.10	N/A
	493™	234060	1 oz. bottle	General purpose wicking grade	Clear	0.002	Methyl	5	3,625	-65°F (-54°C) to 180°F (82°C)	Fixture - 30 sec. Full - 24 hrs.	1.10	Commercial Item Std. A-A-3097
	4471™	158530 233993	20 g bottle 1 lb. bottle	Bonding acidic surfaces	Clear	0.007	Ethyl	625	3,190	-65°F (-54°C) to 180°F (82°C)	Fixture - 5 sec. Full - 24 hrs.	1.05	N/A
HYBRID BONDERS	HY 4070™	2264448	11 g cartridge	Bonding	Transparent, cloudy	Up to 5mm	N/A	Part A - 200 to 1,300 / Part B - 1 to 30	3,625	120	4 to 5 mins.	Part A - 1.05 to 1.1 / Part B - N/A	N/A
	HY 4090™	2123350 2060035	50 ml cartridge 400 ml cartridge	Bonding	Off-white to light yellow	Up to 5mm	N/A	Part A - 4,000 to 7,000 / Part B - 25,000 to 40,000	2,420	150	3 to 5 mins.	Part A - 1.01 / Part B - 1.06	N/A
	HY 4090™ GY NA	2205827	50 ml cartridge	Bonding	Grey	Up to 5mm	N/A	Part A - 4,000 to 7,000 / Part B - 25,000 to 40,000	2,420	150	3 to 5 mins.	Part A - 1.01 / Part B - 1.06	N/A

Hot Melt Adhesives

- Bond a variety of substrates, including difficult-to-bond plastics
- Can handle today's toughest applications in a broad range of industries
- Ideal for applications that require high speed manufacturing, bonding versatility, very large gap filling, fast green strength and minimal shrinkage
- Solvent-free and contain environmentally responsible materials with no harmful VOCs

Your Application — **WHAT TYPE OF HOT MELT ADHESIVE DO YOU NEED?**

General Bonding	Porous Substrates
Performance Assembly	General Assembly
Gap Filling	Medium Open Time
Solution: TECHNOMELT® PA 7804™	**Solution:** TECHNOMELT® 232™

Color	Amber	Clear
Viscosity (cP) at Dispense Temp.	7,500	11,000
Open Time (Sec.)	35	15
Heat Resistance	220°F (104°C)	153°F (67°C)
Shore Hardness	A 74	N/A

Product Description

TECHNOMELT® PA 7804™ Hot Melt Adhesive

Impact Resistant

Tough, elastomeric, high performance adhesive with excellent impact resistance at low temperatures.

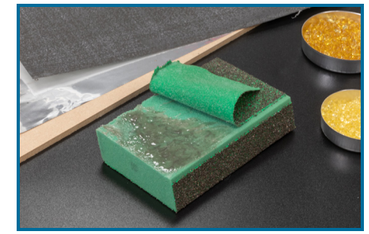
IDH	Package Size
2986635	Superstick (10 in.) 32 lb. carton

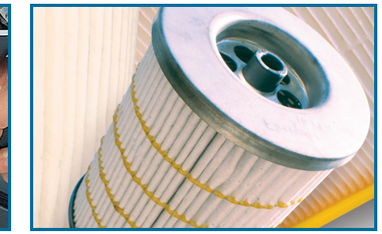
TECHNOMELT® 232™ Hot Melt Adhesive

Medium Open Time

A medium setting adhesive with an open time of 15 seconds.

IDH	Package Size
2897689	Polyshot 35 lb. carton



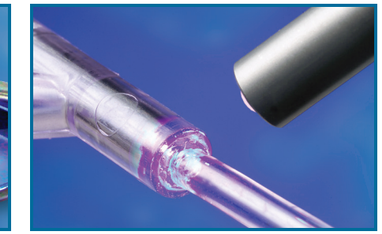


LOCTITE® Hot Melt Adhesive Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	COLOR	ATTRIBUTES	VISCOSITY (cP) AT DISPENSE TEMPERATURE	TENSILE STRENGTH (psi)	OPEN TIME	TEMPERATURE RESISTANCE	% ELONGATION	SHORE HARDNESS	AGENCY APPROVALS
POLYAMIDE-BASED	TECHNOMELT® PA 7804™	2986635	Superstick (10 in.) 32 lb. carton	Amber	High viscosity	7,500	340	35 seconds	220°F (104°C)	900	A 74	N/A
	TECHNOMELT® 232™	2897689	Polyshot 35 lb. carton	Clear	Medium open time	11,000	N/A	15	153°F (67°C)	N/A	N/A	N/A
	TECHNOMELT® PA 6900™	2320689	50 lb.	Light Amber	High Viscosity	50,000 @255°C	3500	10-20 seconds	95-99°C	540	A 90	N/A
	TECHNOMELT® PA 6239™	38358	20KG	Light Amber	Multi Substrate	3,600 @240°C	730	40-60 seconds	115-120°C	680	A 81	N/A

Light Cure Adhesives

- One-component, no-mix products that cure extremely fast for immediate QC in high volume assembly operations
- Excellent bond strengths to plastics and glass
- Bond-on-demand capability for unlimited repositioning
- Dual cure formulations for curing where light cannot reach



Your Application

CAN LIGHT REACH THE ENTIRE BOND-LINE THROUGH A TRANSPARENT SUBSTRATE?

- **Yes**
  - **What type of substrates are you using?**
    - **Highly Flexible Substrates**
      - **Bonding to Plastic**
        - **High Viscosity** → **AA 3321™**
        - **Medium Viscosity** → **AA 3953™**
      - **Bonding to Silicone**
        - **Flowable** → **SI 5056™**
        - **Paste** → **SI 5050™**
    - **Transparent Glass Substrates**
      - **Bonded to Glass**
        - **Medium Viscosity** → **AA 3494™**
      - **Bonded to Metal**
        - **High Viscosity** → **AA 3525™**
    - **Transparent Plastic Substrates**
      - **Bonded to Plastic**
        - **Non-Sag Gel** → **AA 3979™**
        - **Medium Viscosity** → **AA 3926™**
      - **Bonded to Metal**
        - **Low Viscosity** → **AA 3922™**
- **No**
  - **Both substrates are opaque**
    - **What is your primary application requirement?**
      - **High Bond Strength Required**
        - **Low Viscosity** → **4310™**
        - **Medium Viscosity** → **4311™**
      - **Flexible Bond-Line**
        - **Low Viscosity** → **4314™**

Solution

	AA 3321™	AA 3953™	SI 5056™	SI 5050™	AA 3494™	AA 3525™
Chemistry	Acrylic	Acrylic	Silicone	Silicone	Acrylic	Acrylic
Viscosity (cP)	5,500	550	2,200	325 g/min.	5,500	15,000
Color	Clear/ Pale Straw	Transparent, Colorless to Straw, Fluorescent	Translucent	Translucent	Clear/Pale Straw	Clear/ Pale Straw/ Translucent
Cure Type	UV, Visible	UV, Visible	UV, Visible	UV	UV, Visible	UV, Visible
Fluorescent	No	Yes	No	No	No	Yes
Shear Strength (psi)	750[3]	3,245[2]	440[1]	N/A	2,440[3]	1,480[3]
Elongation at Break (%)	250	233	170	125	190	260

	AA 3979™	AA 3926™	AA 3922™	4310™	4311™	4314™
Chemistry	Acrylic	Acrylic	Acrylic	Cyanoacrylate	Cyanoacrylate	Cyanoacrylate
Viscosity (cP)	56,500	5,500	300	150	900	175
Color	Translucent/ Straw	Transparent to Hazy Fluorescent	Transparent to Hazy Fluorescent	Clear/Pale Green	Clear/Pale Green	Clear/Pale Green
Cure Type	UV, Visible	UV, Visible	UV, Visible	UV, Visible, Moisture	UV, Visible, Moisture	UV, Visible, Moisture
Fluorescent	Yes	Yes	Yes	Yes	Yes	Yes
Shear Strength (psi)	4,320[2]	2,910[2]	3,400[2]	3,190[2]	3,260[2]	—
Elongation at Break (%)	227	331	135	7	5	17

Product Description

LOCTITE® AA 3321™ Light Cure Adhesive

A transparent, 1-part, very high viscosity, fast cure, acrylic-based instant adhesive for stress-sensitive plastics with high, on-demand curing speed.

IDH	Package Size
135299	25 ml syringe
135300	1 liter bottle

LOCTITE® AA 3953™ Light Cure Adhesive

An acrylic-based, fast-cure adhesive with high humidity resistance. Perfect for bonding plasticized PVC, TPEs, and thermoset rubbers.

IDH	Package Size
2298717	25 ml syringe
2298718	1 liter bottle

LOCTITE® SI 5056™ Light Cure Adhesive

A self-leveling UV/visible light cure adhesive/sealant designed for bonding and sealing applications with highly flexible bond lines. Provides high adhesion to silicone substrates.

IDH	Package Size
1214249	25 ml syringe
1214250	1 liter bottle
1214248*	15 liter pail

LOCTITE® SI 5050™ Light Cure Adhesive

A highly viscous cure-in-place UV light cure adhesive/sealant designed for gasketing, sealing and bonding applications with highly flexible bond lines. Provides high adhesion to silicone substrates.

IDH	Package Size
1212165	40 lb. pail

LOCTITE® AA 3494™ Light Cure Adhesive

A medium viscosity UV/visible light cure adhesive designed for bonding glass and other materials where resistance to humidity and water immersion is required.

IDH	Package Size
235070	25 ml syringe
234138	1 liter bottle

LOCTITE® AA 3525™ Light Cure Adhesive

A high viscosity UV/visible light cure adhesive designed for bonding glass, metals and plastics with excellent flexibility, toughness and durability to moisture exposure.

IDH	Package Size
234691	25 ml syringe
234693	1 liter bottle
1303593	15 liter pail

LOCTITE® AA 3979™ Light Cure Adhesive

Gel, Fluoresces Red

A UV/visible light cure adhesive designed for bonding plastics and other materials that fluoresces red to distinguish it from blue fluorescing substrates. Non-sag gel eliminates dripping.

IDH	Package Size
1402562	25 ml syringe
1402563	300 g cartridge

LOCTITE® AA 3926™ Light Cure Adhesive

A medium viscosity UV/visible light cure adhesive designed for bonding plastics, metals and glass with superior sterilization resistance and flexibility.

IDH	Package Size
434108	25 ml syringe
434109	1 liter bottle

LOCTITE® AA 3922™ Light Cure Adhesive

A low viscosity UV/visible light cure adhesive designed for bonding plastics, metals and glass with superior sterilization resistance. Excellent adhesion to polycarbonate.

IDH	Package Size
312057	25 ml syringe
312054*	1 liter bottle

LOCTITE® 4310™ Light Cure Adhesive

Dual Cure Instant Adhesive

A low viscosity UV/visible light and moisture cure adhesive designed for rapid curing of exposed adhesive as well as curing in shadowed areas where light does not reach.

IDH	Package Size
1401792	1 oz. bottle
1401790	1 lb. bottle

LOCTITE® 4311™ Light Cure Adhesive

Dual Cure Instant Adhesive

A medium viscosity UV/visible light and moisture cure adhesive designed for rapid curing of exposed adhesive as well as curing in shadowed areas where light does not reach.

IDH	Package Size
1401791	1 oz. bottle
1401789	1 lb. bottle

LOCTITE® 4314™ Light Cure Adhesive

A low viscosity, moisture- and light-cure adhesive for the rapid bonding of a range of substrates, as well as for use with flexible medical devices, such as catheters and tube sets.

Self-Leveling/ Noncorrosive

IDH	Package Size
2610570	1 oz. bottle
2610581	1 lb. bottle

* Made-to-order item.
1 Polycarbonate to PVC.
2 Polycarbonate to polycarbonate.
3 Glass to steel.

Light Cure Adhesives

LOCTITE® Light Cure Adhesive Properties Chart

LOCTITE® PRODUCT		IDH NUMBER	PACKAGE TYPE/SIZE	APPEARANCE, CLARITY & COLOR	CURE TYPE	KEY SUBSTRATES	VISCOSITY (cP), BROOKFIELD, 25°C	ELONGATION AT BREAK (%)	SHORE HARDNESS	TEMPERATURE RANGE	AGENCY APPROVALS
EPOXY ADHESIVES	EA 3336™	235349	42 ml dual syringe	Clear/ Light Amber	Ultraviolet, room temperature, heat	Metal, thermoplastic	14,500	6	D 79	-65°F (-54°C) to 350°F (176°C)	N/A
EPOXY ADHESIVES	EA 3335™	219295	25 ml syringe	Hazy White	Ultraviolet, delay cure	Metal, plastic, glass, ceramic	5,000	11.5	D 77	-65°F (-54°C) to 350°F (176°C)	N/A
CYANOACRYLATES ADHESIVES	4306™	487909 487921*	1 oz. bottle 1 lb. bottle	Clear/ Pale Green	Ultraviolet, visible, moisture	Elastomer, metal, polycarbonate, thermoplastic	20	9	D 72	-65°F (-54°C) to 180°F (82°C)	ISO 10993 Compliant
CYANOACRYLATES ADHESIVES	4307™	487920 487922	1 oz. bottle 1 lb. bottle	Clear/Pale Green	Ultravoilet, Visible, Moisture	Elastomer, metal, polycarbonate, thermoplastic	900	2.2	D 82	-65°F (-54°C) to 180°F (82°C)	ISO 10993 Compliant
CYANOACRYLATES ADHESIVES – TOUGHENED	4310™	1401792 1401790	1 oz. bottle 1 lb. bottle	Clear/ Pale Green	Ultraviolet, visible, moisture	Elastomer, metal, polycarbonate, thermoplastic	150	7	D 84	-65°F (-54°C) to 200°F (93°C)	ISO 10993 Compliant
CYANOACRYLATES ADHESIVES – TOUGHENED	4311™	1401791 1401789	1 oz. bottle 1 lb. bottle	Clear/ Pale Green	Ultraviolet, visible, moisture	Elastomer, metal, polycarbonate, thermoplastic	900	5	D 84	-65°F (-54°C) to 200°F (93°C)	ISO 10993 Compliant
SILICONE ADHESIVES	SI 5031™	693986 693987	300 ml cartridge 40 lb. pail	Translucent	Visible, ultraviolet, moisture, acetoxy	Glass, metal, ceramic	5,500	100	A 34	-65°F (-54°C) to 350°F (177°C)	N/A
SILICONE ADHESIVES	SI 5033™	693988	300 ml cartridge	Translucent/ Colorless/ Fluorescent	Visible, ultraviolet, moisture, acetoxy	Glass, metal, ceramic	145 g/min.[†]	170	A 55	-65°F (-54°C) to 350°F (177°C)	N/A
SILICONE ADHESIVES	SI 5039™	742348	300 ml cartridge	Translucent/ Colorless/ Fluorescent	Visible, ultraviolet, moisture, acetoxy	Glass, metal, ceramic	220 g/min.[†]	210	A 37	-65°F (-54°C) to 350°F (177°C)	N/A
SILICONE ADHESIVES	SI 5050™	1212165	40 lb. pail	Translucent	Ultraviolet	Glass, metal, ceramic	325 g/min.[†]	125	A 45	-65°F (-54°C) to 350°F (177°C)	N/A
SILICONE ADHESIVES	SI 5055™	1212167 1214246	25 ml syringe 1 liter bottle	Translucent	Visible, Ultraviolet	Glass, metal, ceramic, polycarbonate	525	161	A 57	-65°F (-54°C) to 200°F (93°C)	ISO 10993 Compliant
SILICONE ADHESIVES	SI 5056™	1214249 1214250	25 ml syringe 1 liter bottle	Translucent	Visible, ultraviolet	Glass, metal, ceramic, polycarbonate	2,200	170	A 43	-65°F (-54°C) to 200°F (93°C)	ISO 10993 Compliant
SILICONE ADHESIVES	SI 5083™	229524	300 ml cartridge	Translucent/ Colorless	Ultraviolet, moisture, acetoxy	Glass, metal, ceramic	145 g/min.[†]	170	A 55	-65°F (-54°C) to 350°F (177°C)	N/A
SILICONE ADHESIVES	SI 5091™	135257 229664	300 ml cartridge 40 lb. pail	Translucent/ Colorless	Ultraviolet, moisture, acetoxy	Glass, metal, ceramic	5,500	100	A 34	-65°F (-54°C) to 350°F (177°C)	UL Classified for U.S.
SILICONE ADHESIVES	SI 5240™	1010341 1010320	25 ml syringe 300 ml cartridge	Translucent/ White	Visible, ultraviolet, moisture	Glass, metal, ceramic	18,000	270	A 45	-65°F (-54°C) to 200°F (177°C)	ISO 10993 Compliant
SILICONE ADHESIVES	SI 5248™	92337	300 ml cartridge	Straw	Ultraviolet, moisture	Glass, metal, ceramic	65,000	135	A 25	-65°F (-54°C) to 350°F (177°C)	ISO 10993 Compliant

LOCTITE® PRODUCT		IDH NUMBER	PACKAGE TYPE/SIZE	APPEARANCE, CLARITY & COLOR	CURE TYPE	KEY SUBSTRATES	VISCOSITY (cP), BROOKFIELD, 25°C	ELONGATION AT BREAK (%)	SHORE HARDNESS	TEMPERATURE RANGE	SHEAR STRENGTH (psi)
ACRYLIC ADHESIVES	AA 3051™	135274	25 ml syringe	Clear/ Light Yellow	Visible	Polycarbonate, thermoplastic, polyvinyl chloride	300	7	D 77	-65°F (-54°C) to 300°F (149°C)	3,350[3]
ACRYLIC ADHESIVES	AA 3103™	146471	25 ml syringe	Clear/ Pale Straw	Ultraviolet, visible	Polycarbonate, thermoplastic	10,000 Thixotropic	260	D 51	-65°F (-54°C) to 300°F (149°C)	2,849[3]
ACRYLIC ADHESIVES	AA 3104™	223103	25 ml syringe	Clear/ Pale Straw	Ultraviolet, visible	Polycarbonate, thermoplastic, polyvinyl chloride	160	50	D 69	-65°F (-54°C) to 300°F (149°C)	3,155[3]
ACRYLIC ADHESIVES	AA 3105™	195574 230367	25 ml syringe 1 liter bottle	Clear/ Pale Straw	Ultraviolet, visible	Polycarbonate, thermoplastic, polyvinyl chloride	300	265	D 64	-65°F (-54°C) to 300°F (149°C)	3,640[3]
ACRYLIC ADHESIVES	AA 3106™	88299 168331 230886	25 ml syringe 1 liter bottle 15 liter pail	Clear/ Pale Straw	Ultraviolet, visible	Polycarbonate, thermoplastic, polyvinyl chloride	5,000	250	D 53	-65°F (-54°C) to 300°F (149°C)	3,392[3]

* Made-to-order item.

LOCTITE® Light Cure Adhesive Properties Chart

LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	APPEARANCE, CLARITY & COLOR	CURE TYPE	KEY SUBSTRATES	VISCOSITY (cP), BROOKFIELD, 25°C	ELONGATION AT BREAK (%)	SHORE HARDNESS	TEMPERATURE RANGE	SHEAR STRENGTH (psi)
ACRYLIC ADHESIVES – AA 3108™	233263	1 liter bottle	Clear/Straw/ Fluorescent	Ultraviolet, visible	Plasticized PVC, thermoplastic	500	220	D 27	-65°F (-54°C) to 300°F (149°C)	783[4]
AA 3201™	237036 135297	25 ml syringe 1 liter bottle	Clear/ Pale Straw	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate	3,750	265	D 59	-65°F (-54°C) to 300°F (149°C)	1,700[3]
AA 3211™	135298 182815	25 ml syringe 1 liter bottle	Clear/ Pale Straw	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate	11250, Thixotropic	260	D 51	-65°F (-54°C) to 300°F (149°C)	1,600[3]
AA 3301™	475362 195722	25 ml syringe 1 liter bottle	Clear/ Pale Straw	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinyl chloride	150	50	D 69	-65°F (-54°C) to 300°F (149°C)	3,155[3]
AA 3311™	88189 146461	25 ml syringe 1 liter bottle	Clear/ Pale Straw	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinyl chloride	300	265	D 64	-65°F (-54°C) to 300°F (149°C)	3,640[3]
AA 3321™	135299 135300	25 ml syringe 1 liter bottle	Clear/ Pale Straw	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinyl chloride	5,500	250	D 53	-65°F (-54°C) to 300°F (149°C)	750[3]
AA 3381™	231590	25 ml syringe	Clear, Straw, Fluorescent	Ultraviolet, visible	Thermoplastic, polyvinyl chloride	525	220	D 27	-65°F (-54°C) to 300°F (149°C)	900[4]
AA 349™	88489 135409	50 ml bottle 1 liter bottle	Translucent, Colorless	Ultraviolet	Thermoplastic, thermoset plastics	5,100	330	A 72	-65°F (-54°C) to 300°F (149°C)	>797
AA 3491™	142886	1 liter bottle	Clear/ Pale Straw	Ultraviolet	Glass, metal	1,100	27	D 75	-65°F (-54°C) to 300°F (149°C)	1,450[1]
AA 3494™	235070 234138	25 ml syringe 1 liter bottle	Clear/ Pale Straw	Ultraviolet, visible	Glass, metal	5,500	190	D 65	-65°F (-54°C) to 300°F (149°C)	2,440[1]
AA 352™	135412 135413	50 ml bottle 1 liter bottle	Clear/ Light Amber	Ultraviolet, heat, activator	Glass, metal	19,500	290	D 60	-65°F (-54°C) to 275°F (135°C)	2,400[1]
AA 3525™	234691 234693 1303593	25 ml syringe 1 liter bottle 15 liter pail	Clear/ Pale Straw/ Fluorescent	Ultraviolet, visible	Glass, metal, thermoset plastic	15,000	260	D 60	-65°F (-54°C) to 300°F (149°C)	1,480[1]
AA 3526™	235065 235067	25 ml syringe 1 liter bottle	Clear/ Pale Straw/ Fluorescent	Ultraviolet, visible, heat	Glass, metal, thermoset plastic	17,500	185	D 62	-65°F (-54°C) to 300°F (149°C)	1,530[1]
AA 3528™	2890774	1 liter bottle	Transparent	Ultraviolet, Visible	Glass, metal, plastics	13,800	280	D 60	-65°F (-54°C) to 300°F (149°C)	520[3]
AA 363™	135416	1 liter bottle	Clear/ Pale Straw	Ultraviolet	Metal, thermoset plastic	250	88	D 50	-65°F (-54°C) to 356°F (180°C)	1,740[1]
AA 366™	135239	1 liter bottle	Clear/ Light Amber	Ultraviolet, activator	Glass, metal	7,500	240	D 45	-65°F (-54°C) to 230°F (110°C)	1,450[1]
AA 3751™	135321 135322	25 ml syringe 1 liter bottle	Clear/ Colorless	Ultraviolet	Various	10,000	50	D 73	-65°F (-54°C) to 275°F (135°C)	700[3]
AA 3921™	434102 434103	25 ml syringe 1 liter bottle	Transparent to Hazy, Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinyl chloride	150	32	D 67	-65°F (-54°C) to 300°F (149°C)	3,060[3]
AA 3922™	312057 312054	25 ml syringe 1 liter bottle	Transparent to Hazy/ Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinyl chloride	300	135	D 66	-65°F (-54°C) to 300°F (149°C)	3,400[3]
AA 3924™	434105 434106	25 ml syringe 1 liter bottle	Transparent to Hazy, Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinyl chloride	1,100	280	D 60	-65°F (-54°C) to 300°F (149°C)	2,350[3]
AA 3926™	434108 434109	25 ml syringe 1 liter bottle	Transparent to Hazy/ Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate	5,500	331	D 57	-65°F (-54°C) to 300°F (149°C)	2,910[3]
AA 3936™	312050	25 ml syringe	Transparent to Hazy, Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate	11,000	300	D 55	-65°F (-54°C) to 300°F (149°C)	2,760[3]
AA 3942™	434101 434089	25 ml syringe 1 liter bottle	Transparent to Hazy, Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, thermoset plastic	1,250	15	D 76	-65°F (-54°C) to 300°F (149°C)	1,610[3]
AA 3943™	434088 434084 434087	25 ml syringe 1 liter bottle 15 liter pail	Transparent to Hazy, Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, thermoset plastic	6,750	271	D 69	-65°F (-54°C) to 300°F (149°C)	1,410[3]
AA 3944™	534429	25 ml syringe	Transparent to Hazy, Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinyl chloride	5,000	86	N/A	-65°F (-54°C) to 300°F (149°C)	2,610[3]
AA 3951™	2298393 2298394	25 ml syringe 1 liter bottle	Transparent, Colorless to Straw, Fluorescent	Ultraviolet, visible	Thermoset Rubbers, TPEs, Plastics, polycarbonate, polyvinyl chloride	185	251	D 62	-65°F (-54°C) to 300°F (149°C)	3,270[3]
AA 3953™	2298717 2298718	25 ml syringe 1 liter bottle	Transparent, Colorless to Straw, Fluorescent	Ultraviolet, visible	Thermoset Rubbers, TPEs, Plastics, polycarbonate, polyvinyl chloride	550	233	D 56	-65°F (-54°C) to 300°F (149°C)	3,245[3]
AA 3961™	2464890	25 ml syringe	Transparent, Colorless to Straw, Fluorescent	Ultraviolet, visible	Plastics, metals, polycarbonate	80	4.5	D 75	-65°F (-54°C) to 300°F (149°C)	3,200[3]
AA 3979™	1402562 1402563	25 ml syringe 300 g cartridge	Translucent/ Straw	UV/Visible	Polycarbonate, polyvinyl chloride	56,500	227	D 56	-65°F (-54°C) to 300°F (149°C)	3,5003
AA 4314™	2610570 2610581	1 oz. bottle 1 liter bottle	Clear/Pale Green	Ultravoilet, Visible, Moisture	Elastomer, metal, polycarbonate, thermoplastic	175	17	D 74	-65°F (-54°C) to 180°F (82°C)	N/A

[†] Extrusion rate, gram/minute, 1/8 in. orifice at 90 psi.

[1] Grit-blasted steel to glass.
[2] Etched aluminum.
[3] Polycarbonate to polycarbonate.
[4] Polycarbonate to PVC.

Solvent-Based & Specialty Adhesives

Your Application

To meet tough on-the-job requirements, LOCTITE® solvent-based aerosol and liquid adhesives provide a combination of:

- Cure speed
- Impact resistance
- Strength
- Temperature range
- Solvent and moisture resistance

WHAT TYPE OF APPLICATION PROCESS WOULD YOU PREFER?

Liquid Tube Application	Aerosol Spray
Solvent-Free	Maximum Strength
Power Grab® Industrial Construction Adhesive	MR 5426™

Solution

Color	Clear	Clear
Temperature Range	Up to 120°F (49°C)	Up to 170°F (77°C)
Fixture Time (min.)	20	15 to 20
Agency Approvals	N/A	N/A

Product Description

LOCTITE® Power Grab® Industrial Construction Adhesive

Single-component, off-white, heavy duty, high strength, construction grade adhesive for interior and exterior repairs or building projects.

IDH	Package Size
1804373	300 ml cartridge

LOCTITE® MR 5426™ Maximum Strength Headliner Adhesive

A high strength, aerosol product designed for bonding foam, carpet, fabrics, plastics, rubber, etc. LOCTITE® Maximum Strength Headliner Adhesive is resistant to extreme seasonal temperatures, is water resistant and sprays on clear.

IDH	Package Size
37312	16.75 oz. net wt. aerosol

LOCTITE® Solvent-Based Adhesive Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	COLOR/APPEARANCE	TEMPERATURE RANGE	FIXTURE/BOND TIME	FULL CURE	COMMON SURFACES ADHESIVE WILL BOND	AGENCY APPROVALS
SPRAY ADHESIVES	MR 5426™	37312	16.75 oz. net wt. aerosol	Clear Drying, Semitranslucent Foam	Up to 170°F (77°C)	Let dry 15-20 minutes before assembly. Spray both sides to be bonded for maximum strength.	24 hours at ambient temperature	Foam, carpet, fabrics, plastics and rubber	N/A

LOCTITE® Specialty Adhesive Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	FEATURES	COLOR	VISCOSITY	SHEAR STRENGTH (psi)	WORKING TIME (min.)	FIXTURE TIME (min.)	FULL CURE (hrs.)	MAXIMUM TEMPERATURE
SPECIALTY PRODUCT	POWER GRAB® INDUSTRIAL CONSTRUCTION ADHESIVE	1804373	300 ml cartridge	General-purpose construction adhesive	Clear	Paste	800*	15	20	24	120°F (49°C)

* Pine (wet).

THE BOND WILL BE INSTANT

For faster fixturing of these solvent-based contact adhesives, apply the adhesive to one side of both parts, and allow to breathe for one to two minutes. When the surface starts to appear dry, apply a small additional amount of adhesive to one side and assemble the sides together.

HELPFUL HINTS

Elastomeric Adhesives for Bonding & Sealing

Your Application — ARE YOU BONDING OR SEALING?

- Bonding
  - One-Part
    - General-Purpose → **TEROSON® MS 930™ NA**
    - Primerless Adhesion → **TEROSON® MS 5570™**
    - Fast Skinning → **TEROSON® MS 9360™**, **TEROSON® MS 9380™**, **TEROSON® MS 939™ NA**
  - Two-Part
    - Unlimited Depth of Cure → **TEROSON® MS 9399™**
- Sealing
  - One-Part
    - Primerless Adhesion → **TEROSON® MS 5510™**
    - RTV → **SI 593™ / SI 595™ / SI 594™**
    - Mildew Resistant → **SI 5049™**
    - Super Fast → **TEROSON® MS 9320™**

	TEROSON® MS 930™ NA	TEROSON® MS 5570™	TEROSON® MS 9360™	TEROSON® MS 9380™	TEROSON® MS 939™ NA	TEROSON® MS 9399™	TEROSON® MS 5510™	SI 593™ / SI 595™ / SI 594™	SI 5049™	TEROSON® MS 9320™
Color	White, Grey, Black	White	Black	White	White, Grey, Black	White, Black	White, Grey, Black, Clear	Black, Clear, White	Clear, White	Grey
Temperature Range	-58ºF (-50ºC) to 176ºF (80ºC)	-40ºF (-40ºC) to 200ºF (93ºC)	-40ºF (-40ºC) to 200ºF (93ºC)	-40ºF (-40ºC) to 212ºF (100ºC)	-40ºF (-40ºC) to 200ºF (93ºC)	-40ºF (-40ºC) to 200ºF (93ºC)	-40ºF (-40ºC) to 200ºF (93ºC)	-65ºF (-54ºC) to 450ºF (232ºC)	-40ºF (-40ºC) to 250ºF (121ºC)	-22ºF (-30ºC) to 194ºF (90ºC)
Cure Method	Moisture	Moisture	Moisture	Moisture	Moisture	2-Component Mix	Moisture	Moisture	Moisture	Moisture
Tensile Strength (psi)	1.0	250 to 380	475	580 (b)	450	435	250	115	115	260 (b)

Product Description

- Exhibit high resiliency while maintaining high tensile strength and good adhesion to many substrates – all without the use of a primer
- Ideal for bonding and sealing a multitude of substrates
- Silicones exhibit the highest temperature resistance compared to other products in this section
- Use Elastomeric Adhesives when joint flexibility – coefficient of thermal expansion (CTE) – is required

TEROSON® MS 930™ NA Polymer Sealant

Designed for elastic seam and joint sealing, and bonding and coating of most metals and plastics. It is primerless, offers good UV and weather resistance, is paintable after applied and is solvent and isocyanate-free.

IDH	Package Size*
2138431	290 ml cartridge, black
2138430	290 ml cartridge, white

TEROSON® MS 5570™ Elastic Adhesive

A strong bonding adhesive based on Flextec® Technology with elastic properties for bonding dissimilar substrates. High initial tack and fast setting make it ideal for high productivity applications.

IDH	Package Size*
1565679	300 ml cartridge, white

TEROSON® MS 9360™ Elastic Adhesive

This product exhibits the highest shear strength on a majority of substrates versus the other products in this line.

IDH	Package Size
2580948	300 ml cartridge, black
2568865	250 kg drum, black

TEROSON® MS 9380™ Elastic Adhesive

Designed for elastic bonding and sealing. High strength, elastomeric adhesive with fast skin time and excellent UV resistance.

IDH	Package Size
2568816	290 ml cartridge, white

TEROSON® MS 939™ NA Polymer Sealant

1-part, flexible, odorless adhesive cures to a UV-resistant elastomeric thermoset product. It is sag-resistant, non-corrosive and free of solvents, isocyanates, silicones and PVC. Great for interior and exterior applications.

TEROSON® MS 939™ NA Black

IDH	Package Size
2068378	300 ml cartridge
2596334	290 ml cartridge
2069989	570 ml sausage

TEROSON® MS 939™ NA White

IDH	Package Size
2069997	290 ml cartridge
2069988	570 ml sausage

TEROSON® MS 939™ NA Grey

IDH	Package Size
2069400	290 ml cartridge
2069990	570 ml sausage

TEROSON® MS 9399™ Elastic Adhesive

A two-component adhesive for elastic bonding where the curing rate of one-component adhesives is too slow. The mixed adhesive is non-sag, has high tack and fast set time. The cured product provides durable bonding to a wide variety of substrates.

IDH	Package Size
2696714	400 ml dual cartridge, white

TEROSON® MS 5510™ Elastic Sealant

A multipurpose product based on Flextec® Technology suitable for many adhesive and sealant applications. It offers a fast skin time and cures to a tack-free surface. Its outstanding adhesion and toughness make it ideal for bonding and sealing between dissimilar substrates that are subjected to joint movement or impact.

IDH	Package Size*
1562042	300 ml cartridge, white
1562040	300 ml cartridge, clear
1560557	300 ml cartridge, black
1562044	300 ml cartridge, grey

LOCTITE® SI 593™ Black / SI 595™ Clear / SI 594™ White Silicone Adhesive Sealant

This silicone product has excellent adhesion to most substrates. Key features are resistances to extreme thermal and UV cycling without hardening, shrinking or cracking.

LOCTITE® SI 593™ Black

IDH	Package Size
193996	80 ml tube, black
193997	300 ml cartridge, black
743519	190 ml can, black

LOCTITE® SI 595™ Clear

IDH	Package Size
160809	80 ml tube, clear
193999	300 ml cartridge, clear
743915	190 ml can, clear

LOCTITE® SI 594™ White

IDH	Package Size
193998	300 ml cartridge, white

LOCTITE® SI 5049™ Silicone Adhesive Sealant

Mold- and Mildew-Resistant, Fast Waterproof Seal

Creates a tough, watertight, mildew-resistant seal on a wide range of substrates. Withstands water contact just two hours after application.

IDH	Package Size
1311327	300 ml cartridge, clear
1312042	300 ml cartridge, white

TEROSON® MS 9320™ Elastic Adhesive

Sealing system with super fast curing and excellent overpaintability. No cracks, no rust penetration. Unique application system (patent applied).

IDH	Package Size
2568818	300 ml cartridge, grey
2619275	300 ml cartridge, ochre

ADDITIONAL PRODUCTS AVAILABLE

LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	DESCRIPTION
TEROSON® MS 9371™	2576065	25 kg pail	B-component (hardener) for 2-component curing. TEROSON® MS 9371™ is an accelerator paste for TEROSON® adhesives and sealants.
TEROSON® PU 8519™	2241589	100 ml bottle 500 ml bottle	This all-in-one glass primer/activator is specially designed to be used prior to windshield bonding to promote adhesion and UV-protection of direct glazing adhesives/sealants.

* Pail and drums available made-to-order.
** Uncarded tubes, sold as full cases of 100 pieces.

LOCTITE® Elastomeric Adhesive & Sealant Properties Charts

LOCTITE® PRODUCT		IDH NUMBER	PACKAGE TYPE/SIZE	COLOR	CONSISTENCY	OIL RESISTANCE	TEMPERATURE RANGE (INTERMITTENT)	SEALING TIME	AGENCY APPROVALS
SEALANTS/DRESSINGS FOR EXISTING GASKETS	NONCORROSIVE								
	SI 5049™	1311327 1312042	300 ml cartridge 300 ml cartridge	Clear White	Paste	N/A	-40°F to 250°F (-40°C to 121°C)	Watertight – 2 hrs.	ISO 846
	TEROSON® MS 5510™	1562042	300 ml cartridge	White	Paste	Not recommended for oils or fuels	-40°F to 200°F (-40°C to 93°C)	1 to 7 days	N/A
		1562040	300 ml cartridge	Clear					
		1560557	300 ml cartridge	Black					
		1562044	300 ml cartridge	Grey					
	TEROSON® MS 939™	2068378 2069991	290 ml cartridge 22.68 kg pail	Black	Paste	Not recommended for oils or fuels	-40°F (-40°C) to 200°F (93°C)	1 to 7 days	N/A
	TEROSON® MS 935™	2568819	290 ml cartridge	Gray			-40°F (-40°C) to 212°F (100°C)		N/A

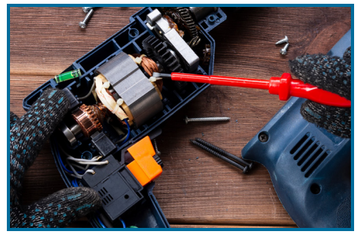
LOCTITE® PRODUCT		IDH NUMBER	PACKAGE TYPE/SIZE	COLOR	CONSISTENCY	OIL RESISTANCE	TEMPERATURE RANGE (INTERMITTENT)	SEALING TIME	AGENCY APPROVALS
SILICONE ADHESIVE SEALANT	SI 593™	193996 193997 743519	80 ml tube 300 ml cartridge 190 ml can	Black	Paste	N/A	-65°F to 450°F (-54°C to 232°C)	Tack-Free – 30 min. Full Strength – 24 hrs.	CFIA Listed
	SI 595™	160809 193999 743915	80 ml tube 300 ml cartridge 190 ml can	Clear					UL Listed for U.S., NSF/ANSI 51, CFIA
	SI 594™	193998	300 ml cartridge	White					CFIA Listed

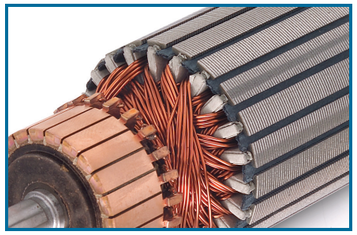
TEROSON® Elastomeric Adhesive & Sealant Properties Chart

TEROSON® PRODUCT		IDH NUMBER	PACKAGE TYPE/SIZE	COLOR	EXTRUSION RATE[1] (g min.)	CURE METHOD	SKIN TIME (min.)	TEMPERATURE RANGE	SHORE HARDNESS	TENSILE STRENGTH[2] (psi)	ELONGATION AT BREAK (%)	SHEAR STRENGTH ON STEEL (psi)
ELASTOMERIC ADHESIVES	TEROSON® MS 5570™	1565679	300 ml cartridge	White	150	Moisture	30	-40°F (-40°C) to 200°F (93°C)	A 55	380	230	400
	TEROSON® MS 9360™	2580948 2568865	300 ml cartridge 250 kg drum	Black	90	Moisture	12	-40°F (-40°C) to 200°F (93°C)	A 55	475	225	425
	TEROSON® MS 9399™	2696714	400 ml dual cartridge	White	N/A	Two-Component Static Mix	25	-40°F (-40°C) to 200°F (93°C)	A 60	435	130	290
	TEROSON® MS 9320™	2568818 2619275	300 ml cartridge 300 ml cartridge	Grey Ochre	NA	Moisture	10 to 20	-22°F (-30°C) to 194°F (90°C)	30	260 (b)	300	200
	TEROSON® MS 9380™	2568816	290 ml cartridge	White	NA	Moisture	5 to 10	-40°F (-40°C) to 212°F (100°C)	65	580 (b)	120% (b)	360
	TEROSON® MS 930™ NA†	2138431 2138430	290 ml cartridge 290 ml cartridge	Black White	NA	Moisture	25 to 40	-58°F (-50°C) to 176°F (80°C)	30	1	250	120
	TEROSON® MS 939™ NA†	2068378 2069997 2069400 2596334 2069989 2069988 2069990	300 ml cartridge 290 ml cartridge 290 ml cartridge 290 ml cartridge 570 ml sausage 570 ml sausage 570 ml sausage	Black White Grey Black Black White Grey	90	Moisture	5	-40°F (-40°C) to 200°F (93°C)	A 55	390	500	270

* Made-to-order item. ** Uncarded tubes, sold as full cases of 100 pieces. † Agency approval: UL Classified/Listed for the U.S.

Two-Step Acrylic Adhesives





Your Application

- Combine the benefits of fast process speeds with tough, durable and environmentally resistant bond strengths
- Ideal for bonding ferrite, alnico and neodymium permanent magnets used in electric motors, small engines, speakers, transformers and other devices

ARE YOU BONDING MAGNETS?

- **Yes**
  - Ultra-Fast Fixture → AA 331™
  - Gap Filling → AA A-671™
  - High Toughness → AA 392™
  - High Temperature Resistance → AA 334™
- **No**
  - Fast Fixture → AA 326™
  - Ultra-Fast Fixture → AA 331™
  - High Temperature Resistance → AA 332™
  - General-Purpose → AA 330™

Solution

	AA 331™	AA A-671™	AA 392™	AA 334™	AA 326™	AA 331™	AA 332™	AA 330™
Color	Cream	Green	Amber	Yellow	Light Amber	Cream	Amber	Pale Yellow
Viscosity (cP)	20,000	30,000	6,500	80,000	17,000	20,000	100,000	67,500
Gap Fill (in.)	0.04	0.10	0.025	0.02	0.02	0.04	0.02	0.03
Fixture Time	20 sec.	30 to 60 sec.	60 sec.	90 sec.	1 min.	20 sec.	3 min.	5 min.
Cure Time (hours)	24	24	24	24	24	24	24	24
Shear Strength[1] (psi)	3,100	2,500	2,500	2,800	3,500	3,100	3,000	3,300
Temperature Resistance	350°F (177°C)	311°F (155°C)	250°F (121°C)	350°F (177°C)	250°F (121°C)	350°F (177°C)	400°F (204°C)	250°F (121°C)
Recommended Activator	SF 7387™	Two-Part External Mix	SF 7387™	SF 7387™	SF 7649™	SF 7387™	SF 7387™	SF 7387™

Product Description

LOCTITE® AA 331™ Adhesive

Ultra-Fast Fixture

Toughened, activator-cure acrylic. Acid-free, noncorrosive to sensitive parts. Fixtures in 20 seconds and develops full strength in 30 minutes. Excellent high temperature resistance. Ideal for bonding close-fitting metals and magnets.

IDH	Package Size
1057673	25 ml syringe
1057674	1 liter bottle

LOCTITE® AA A-671™ Adhesive

Gap Filling

Two-component external mix acrylic requires no static mixing or activators. Excellent humidity resistance and gap filling capability. Fast fixturing.

IDH	Package Size
1256488	4,000 ml kit (adhesive/activator)

LOCTITE® AA 392™ Adhesive

Fast Fixture/Toughened

One- or two-component, dual-cure acrylic. Provides fast fixture speed and tough, reliable bonds.

IDH	Package Size
232853	25 ml syringe
232855	50 ml tube
135427	1 liter bottle
229514	15 liter pail

LOCTITE® AA 334™ Adhesive

High Temperature

Two-component, dual-cure acrylic. Forms tough, flexible bonds on gaps up to 0.02 in. Resists temperatures up to 350°F.

IDH	Package Size
247075	25 ml syringe
232749	300 ml cartridge

LOCTITE® AA 326™ Adhesive

Fast Fixture

An all-purpose bonder. Offers the strength of an epoxy and the speed of an instant adhesive. Solvent resistant. Cures in minutes. Ideal for applications requiring fast fixturing. Use with Loctite® SF 7649™.

IDH	Package Size
135402	50 ml bottle
135404	1 liter bottle

LOCTITE® AA 331™ Adhesive

Ultra-Fast Fixture

Toughened, activator-cure acrylic. Acid-free, noncorrosive to sensitive parts. Fixtures in 20 seconds and develops full strength in 30 minutes. Excellent high temperature resistance. Ideal for bonding close-fitting metals and magnets.

IDH	Package Size
1057673	25 ml syringe
1057674	1 liter bottle

LOCTITE® AA 332™ Adhesive

High Temperature

An activator-cured, no-mix adhesive that provides high temperature capability with thermal durability up to 400°F (204°C).

IDH	Package Size
232741	25 ml syringe
232743	300 ml cartridge
160794	1 liter bottle
229547	12 liter pail

LOCTITE® AA 330™ Adhesive

General Purpose

A general-purpose, high viscosity adhesive for a wide range of materials, including metal, wood, ferrite, ceramic and plastic.

IDH	Package Size
1691394	3 ml kit
1690727	25 ml kit
1691005	250 ml kit
1689700	250 ml tube
1689437	300 ml cartridge
1689439	1 liter bottle

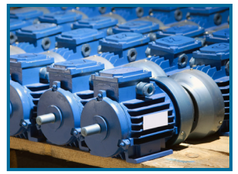
ACCELERATORS, ACTIVATORS & PRIMERS

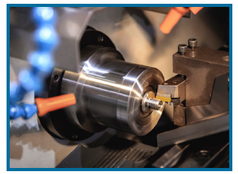
Henkel has a complete line of LOCTITE® surface preparation accelerators, activators and primers, as well as a complete line of general-purpose LOCTITE® branded cleaners and degreasers, and specialized products to ensure the maximum performance of LOCTITE® adhesives and sealants.

LOCTITE® activators – including SF 770™, SF 7452™ and SF 7649™ – are specially engineered curing agents for structural adhesives.

* Made-to-order item.
[1] Steel.

Two-Step Acrylic Adhesives





LOCTITE® Two-Step Acrylic Adhesive Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	FEATURES	COLOR	VISCOSITY (cP)	GAP FILL (in.)	FIXTURE TIME	CURE TIME (hrs.)	SHEAR STRENGTH[1] (psi)	TEMPERATURE RESISTANCE[2]	RECOMMENDED ACTIVATOR
GENERAL PURPOSE	AA 312™	228190 228173	24 ml kit[3] 50 ml kit[4]	General-Purpose, Ultra-fast Fixture	Clear to Amber	1,000	0.003	1 minute	24	>2,490	250°F (121°C)	SF 736™
GENERAL PURPOSE	AA 325™	135401 198322	50 ml bottle 1 liter bottle	Severe Environment, Chemical Resistant	Clear Brown	20,000	0.040	5 minutes	24	1,600	300°F (149°C)	SF 7075™ or SF 7387™
GENERAL PURPOSE	AA 324™	88478 232679	50 ml bottle 1 liter bottle	No Mix/ Small Gap	Amber	17,000	N/A	5 minutes	24	2,700	350°F (177°C)	SF 7387™ or SF 7075™
GENERAL PURPOSE	AA 326™	135402 135404	50 ml bottle 1 liter bottle	Fast Fixture	Light Amber	17,000	N/A	1 minute	24	2,200	250°F (121°C)	SF 7649™
GENERAL PURPOSE	AA 330™	1691394 1690727 1691005 1689700 1689437 1689439	3 ml kit[5] 25 ml kit[6] 250 ml kit[7] 250 ml tube 300 ml cartridge 1 liter bottle	General-Purpose	Pale Yellow	67,500	N/A	5 minutes	24	3,300	250°F (121°C)	SF 7387™
GENERAL PURPOSE	AA 331™	1057673 1057674	25 ml syringe with manual plunger 1 liter bottle	Ultra-fast Fixture, Acid-free	Cream	20,000	0.040	20 seconds	24	3,100	350°F (177°C)	SF 7387™
GENERAL PURPOSE	AA 332™	232741 232743 160794 229547	25 ml syringe with manual plunger 300 ml cartridge 1 liter bottle 1 liter pail	No Mix/ Small Gap	Amber	100,000	N/A	3 minutes	24	3,000	400°F (204°C)	SF 7387™
MAGNET BONDING	AA A-671™	1256488	4000 ml kit, adhesive/ activator	Gap Filling, Humidity Resistant, Fast Fixture External Mix	Green	30,000	0.100	30 to 60 seconds	24	2,500 to 3,000	401°F (205°C)	Two-Part External Mix
MAGNET BONDING	AA 334™	247075 232749	25 ml syringe with manual plunger 300 ml cartridge	Severe Environment, High Temperature	Yellow	80,000	0.020	60 seconds	24	2,800	350°F (177°C)	SF 7387™ or SF 7380™
MAGNET BONDING	AA 392™	232853 232855 135427 229514	25ml syringe with manual plunger 50 ml tube 1 liter bottle 15 liter pail	High Toughness, Heat or Activator Cure	Amber	6,500	0.025	60 seconds	24	2,500	250°F (121°C)	SF 7387™

* Made-to-order item.
1 Steel.
2 Product is heat aged at temperature and tested at 72°F (22°C). Product maintained ≥ 75% of its initial strength.
3 23 ml bottle of Loctite® AA 312™ and 170 g aerosol can of Loctite® SF 736™ Activator
4 50 ml bottle of Loctite® AA 312™ and 6 oz. aerosol can of Loctite® SF 736™ Activator
5 Contains 2.5 ml tube of Loctite® 330™ Adhesive and 0.6 ml ampule of Loctite® SF 7387™ Activator.
6 Contains 25 ml syringe of Loctite® 330™ Adhesive and 25 g aerosol can of Loctite® SF 7387™ Activator.
7 Contains 250 ml tube of Loctite® 330™ Adhesive and 128 g of Loctite® SF 7387™ Activator.

LOCTITE® Activator & Primer Properties Chart

	LOCTITE® PRODUCT	IDH	PACKAGE TYPE & SIZE	COLOR	VISCOSITY (cP)	BASE	ON-PART LIFE	DRY TIME	APPLICATION	AGENCY APPROVALS
ACTIVATORS	SF 7380™	19822 19824 19907	1 liter can 1.75 fl. oz. bottle 1 gallon	Light Brown	43	No solvent	2 hours	None	Structurals	N/A
ACTIVATORS	SF 7387™	18861 18862 21088	1.75 fl. oz. bottle 1 quart can 4.5 oz. net wt. aerosol can	Light Brown	1.5	Heptane/ Isopropanol	2 hours	None	Structurals	N/A
PRIMER	SF 7649™	19269 21347 21348 19266	1.75 fl. oz. glass bottle 25 g net wt. aerosol can 4.5 oz. net wt. aerosol can 1 gallon can	Clear/Green	2	Acetone	30 days	30 to 70 seconds	Anaerobics	MIL-S-22473E for existing designs, ASTM D-5363 for new designs, NSF/ANSI 61, NSF P1, CFIA Listed

Two-Part Acrylic Adhesives

Your Application

- Specially formulated to provide tough, long-lasting bonds to most surfaces, including steel, galvanized steel, aluminum, sheet metal, stainless steel, plastics and composites
- Capable of reducing or replacing the need for threaded fasteners, welds or rivets, resulting in a lower cost assembly

ARE YOU BONDING METALS OR PLASTICS/COMPOSITES?

- Metals
  - General Metal Bonders
    - Longer Work Time
    - Fast Work Time
  - Galvanized
  - Steel
  - Aluminum
    - Fast Work Time
    - Ultra-Fast Work Time
- Plastics/Composites
  - Are you bonding polyolefins?
    - Fast Work Time
    - Longer Work Time
    - High Toughness
    - High Strength
    - Yes
      - Fast Work Time

Solution

	AA H8000™	AA H4500™	AA H8600™	AA H8500™	AA H8100™	AA H8003™	AA H3300™	AA H3101™	AA H8006™	AA H3000™	AA 3035™
Color	Green	Grey	Blue	Grey	Green	Gray	Yellow	Cream	Light Blue	Cream	Off-White
Viscosity (cP)	190,000	45,000	86,000	60,000	185,000	28,000	110,000	75,000	45,000	45,000	14,000
Mix Ratio	10:1	10:1	2:1	10:1	10:1	4:1	1:1	1:1	10:1	1:1	1:1
Work Time† (min.)	30	15	25	25	15	10	5[6]	41[6]	7	5[6]	4[2]
Shear Strength[1] (psi)	3,140[3]	3,100	3,355	3,380	3,090[3]	2,600[3]	3,350	2,510	3,300	4,150[1]	1,658[2]
Impact Strength[5] (J)	23	12	10	14	2[3]	2.4	14	15	14.8[6]	21	13.6[2]
Peel Strength[1] (pli)	45	58	35[4]	92	45	2.4	40[4]	45[4]	13	45	N/A

Product Description

LOCTITE® AA H8000™ Adhesive

Tough Metal Bonder

Exhibits excellent peel strength on multiple substrates, especially aluminum.

IDH	Package Size
996453	50 ml dual cartridge
411833	490 ml dual cartridge

LOCTITE® AA H4500™ Adhesive

Fast Work Time

High strength structural adhesive for metals. Fixtures in 15 minutes. With color mix indication.

IDH	Package Size
2060848	490 ml dual cartridge

LOCTITE® AA H8600™ Adhesive

Galvanized Steel Bonder

Excellent shear strength on steel and aluminum. Especially designed for severe environments.

IDH	Package Size
2060835	400 ml dual cartridge
2297093	5 gallon pail (part A)
2297098	5 gallon pail (part B)

LOCTITE® AA H8500™ Adhesive

Ultra-Tough Steel Bonder

Excellent peel strength on steel and aluminum. Contains 30 mil spacer beads to prevent excessive squeeze-out of adhesive due to over-clamping.

IDH	Package Size
2069980	490 ml dual cartridge
2069982	5 gallon pail (part A)
825622	5 gallon pail, (part B)

LOCTITE® AA H8100™ Adhesive

Aluminum Bonder

Exhibits excellent strength on aluminum.

IDH	Package Size
1056942	50 ml dual cartridge
1056943	490 ml dual cartridge

LOCTITE® AA H8003™ Adhesive

Ultra-Fast Aluminum Bonder

This 2-part, room-temperature curing adhesive system has a fast fixture time and excellent bond strength on multiple substrates, as well as superior peel and impact resistance.

IDH	Package Size
2494409	50 ml dual cartridge
2244127	490 ml dual cartridge

LOCTITE® AA H3300™ Adhesive

Fast Fixture

A non-sag, fast fixturing structural adhesive for bonding a variety of substrates.

IDH	Package Size
473132	50 ml dual cartridge
398436	400 ml dual cartridge

LOCTITE® AA H3101™ Adhesive

Extended Work Life

A medium viscosity structural adhesive ideal for bonding a variety of substrates.
NSF/ANSI 61 Certified.

IDH	Package Size
2018435	50 ml dual cartridge
2018429	400 ml dual cartridge

LOCTITE® AA H8006™ Adhesive

Two part system that cures at room temperature, as a methacrylate adhesive. It provides excellent bonding strength on many different substrates, such as plastics, composites, and metals, all while maintaining a relatively fast fixture time.

IDH	Package Size
2340592	490 ml "F" dual cartridge
2919835	5 gallon Pail (Part A)
2918288	5 gallon Pail (Part B)

LOCTITE® AA H3000™ Adhesive

High Strength

A low viscosity adhesive which exhibits high bond strength on a variety of substrates.

IDH	Package Size
398426	50 ml dual cartridge
398425	400 ml dual cartridge

LOCTITE® AA 3035™ Adhesive

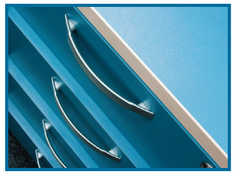
Fast Fixture

A fast fixturing acrylic adhesive designed to bond low energy plastic substrates without any surface preparation.

IDH	Package Size
1677288	50 ml dual cartridge

* Made-to-order item.
† Working time = maximum time before assembly of parts to ensure proper wetting.
[1] Steel.
[2] High density polyethylene.
[3] Aluminum.
[4] Galvanized steel.
[5] Grit-blasted mild steel.
[6] Polyethylene.

Two-Part Acrylic

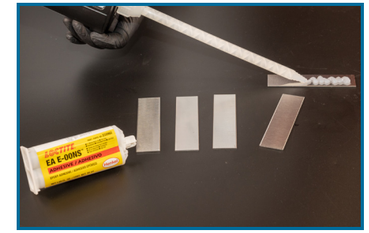


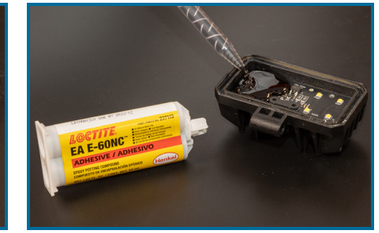
LOCTITE® Two-Part Acrylic Adhesive Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	FEATURES	COLOR	VISCOSITY (cP)	MIX RATIO	WORK TIME[5] (min.)	SHEAR STRENGTH[1] (psi)	IMPACT STRENGTH[6] (joules)	PEEL STRENGTH[1] (pli)
METAL BONDERS	AA H3151™	2025105 2020048	50 ml "A" dual cartridge 400 ml "C" dual cartridge	Extended Work Life	Light Yellow	70,000	1:1	N/A	3,800	N/A	N/A
METAL BONDERS	AA H4500™	2060848	490 ml "F" dual cartridge	Fast Work Time	Grey	45,000	10:1	15	3,100	12	58
METAL BONDERS	AA H8000™	996453 411833	50 ml "S" dual cartridge 490 ml "F" dual cartridge	Longer Work Time	Green	190,000	10:1	30	2,800 4,180[3]	45	45
METAL BONDERS	H8003™	2494409 2244127	50 ml "S" dual cartridge 490 ml "F" dual cartridge	E-coat/powder coat compatible.	Gray	A: 28000 B: 25000	4:1	10	2,600 3,800[3]	2.4	20
METAL BONDERS	H8006™	2340592 2919835 2918288	490 ml "F" dual cartridge 5 gallon pail (part A) 5 gallon pail (part B)	Ultra-fast Work time	Light Blue	A: 45000	10:1	7	3,300 ≥3,000[3]	14.8[2] 15.5	13
METAL BONDERS	H8018™	2340595	490 ml "F" dual cartridge	Slow work time	Green	A: 76000 B: 17000	10:1	30	1,500 2,900[3]	5[4] 8[3]	80[3]
METAL BONDERS	AA H8100™	1056942 1056943	50 ml "S" dual cartridge 490 ml "F" dual cartridge	Fast Work Time	Green	190,000	10:1	15	2,880 3,090[3]	11	45
METAL BONDERS	AA H8500™	2069980 2069982 828622	490 ml "F" dual cartridge 5 gallon pail (part A) 5 gallon pail (part B)	Fast Work Time	Grey	60,000	10:1	25	2,175 2,180[3]	14	92
METAL BONDERS	AA H8600™	2060835 2297093 2297098	400 ml "F" dual cartridge 5 gallon pail (part A) 5 gallon pail (part B)	Medium Work Time	Blue	86,000	2:1	25	≥1,800[4]	10	35[4]
METAL BONDERS	AA H8610™	2057561	400 ml "F" dual cartridge	Fast Work Time	Off-White	105,000	2:1	11	1,800 4,180[4]	>14	55
PLASTIC & COMPOSITE BONDERS	AA H3000™	398426 398425	50 ml "A" dual cartridge 400 ml "C" dual cartridge	High Strength	Cream	45,000	1:1	5[7]	4,150	21	45
PLASTIC & COMPOSITE BONDERS	AA H3101™	2018435 2018429	50 ml "A" dual cartridge 400 ml "C" dual cartridge	Medium Work Time	Cream	75,000	1:1	41[7]	2,510	15	35
PLASTIC & COMPOSITE BONDERS	AA H3300™	473132 398436	50 ml "A" dual cartridge 400 ml "C" dual cartridge	Fast Work Time	Yellow	110,000	1:1	5[7]	3,350	14	40[4]
PLASTIC & COMPOSITE BONDERS	AA 3035™	1677288 1677877	50 ml "A" dual cartridge 400 ml "C" dual cartridge	Fast Fixture Time	Off-White	14,000	1:1	4[2]	1,658[3]	13.6[2]	N/A
PLASTIC & COMPOSITE BONDERS	AA H3405™	2624611	400 ml "C" dual cartridge								
PLASTIC & COMPOSITE BONDERS	H3410™	2603982	400 ml "F" dual cartridge	Fast Work Time	Pale Yellow	90,000	10:1	9	4,020	>29	76

* Made-to-order item.
[1] Steel.
[2] HDPE.
[3] Aluminum.
[4] Galvanized steel.
[5] Working time = maximum time before assembly.
[6] Grit-blasted steel.
[7] Polyethylene.

Epoxy Adhesives





Your Application

- Bond a wide variety of materials, such as metal, ceramic and plastic
- Available in a variety of formulations and performance capabilities, including fast cure, superior moisture resistance, ease of dispense, high toughness, and a resistance to a wide range of chemicals

DO YOU NEED A ONE-PART OR TWO-PART EPOXY?

- **Two-Part**
  - **Do you need the product to fixture in less than 15 minutes at room temperature?**
    - **Yes**
      - **Moisture Resistant** → EA E-05MR™
      - **Flexible** → EA E-05CL™
      - **Non-Sag** → EA E-00NS™
    - **No**
      - **Potting**
        - **Clear** → EA E-30CL™
        - **Explosion Proof** → EA E-40EXP™
        - **Non-Corrosive** → EA E-60NC™
      - **High Toughness**
        - **Short Work Life** → EA E-20HP™
        - **Medium Work Life** → EA E-60HP™
        - **Long Work Life** → EA E-120HP™
        - **Flexible** → EA E-90FL™
- **One-Part** → EA E-214HP™

Solution

	EA E-05MR™	EA E-05CL™	EA E-00NS™	EA E-30CL™	EA E-40EXP™	EA E-60NC™	EA E-20HP™	EA E-60HP™	EA E-120HP™	EA E-90FL™	EA E-214HP™
Color	Clear	Clear	Translucent	Clear	Black	Black	Off-White	Off-White	Amber	Opaque Grey	Grey
Viscosity (cP)	25,000	2,500	100,000	10,000	24,000	8,000	30,000	45,000	30,000	40,000	Paste
Mix Ratio	1:1	1:1	1:1	2:1	2:1	1:1	2:1	2:1	2:1	1:1	N/A
Work Life (minutes)	5	3	3	30	40	60	20	40	120	90	N/A
Fixture Time (minutes)	15	30	10	>180	N/A	180	120	60	180	>180	N/A
Room Temperature Cure Time (hours)	24	24	24	24	24	24	24	24	24	24	0.66 @248°F (120°C)
Shear Strength[1] (psi)	3,360	1,430	1,600	3,100	3,000[2]	2,630	3,270	4,320	4,300	810	4,820
Temperature Resistance	250°F (121°C)	180°F (80°C)	180°F (82°C)	250°F (121°C)	250°F (121°C)	250°F (121°C)	250°F (121°C)	250°F (121°C)	250°F (121°C)	250°F (121°C)	300°F (149°C)

Product Description

LOCTITE® EA E-05MR™ Adhesive

Moisture Resistant

Clear, fast fixturing epoxy that provides excellent moisture resistance and exceptional toughness.

IDH	Package Size
1086598	50 ml dual cartridge
1086599*	400 ml dual cartridge
1087602*	5 gallon pail, resin
1087603*	5 gallon pail, hardener

LOCTITE® EA E-05CL™ Adhesive

Flexible

A clear, flexible, high peel, low odor epoxy with a 3-minute work life.

IDH	Package Size
237099	50 ml dual cartridge
237101	400 ml dual cartridge

LOCTITE® EA E-00NS™ Adhesive

Non-Sag

A fast fixturing, thixotropic, non-sag epoxy which cures at room temperature to form a translucent, rigid and machinable bondline. Well suited for use on vertical surfaces.

IDH	Package Size
233962	50 ml dual cartridge
233964	200 ml dual cartridge

LOCTITE® EA E-30CL™ Adhesive

Clear

An ultra-clear, low viscosity, impact resistant epoxy with a 30-minute work life. An excellent glass bonder. Exhibits exceptional chemical resistance.

IDH	Package Size
237116	50 ml dual cartridge
237117	200 ml dual cartridge
237118	400 ml dual cartridge

LOCTITE® EA E-40EXP™ Adhesive

Explosion Proof/Chemical Resistant

An epoxy designed for potting electrical motors used in hazardous locations. Compliant with UL-674 for explosion-proof electric motors. Excellent chemical resistance.

IDH	Package Size
1511653	200 ml dual cartridge

LOCTITE® EA E-60NC™ Adhesive

Noncorrosive/ Potting

An electronics-grade potting compound with a 60-minute work life. Black, opaque, low viscosity with excellent cure-through depth.

IDH	Package Size
237113	50 ml dual cartridge
237114	200 ml dual cartridge
237115	400 ml dual cartridge
233988*	47 lb. pail, resin
233990*	40 lb. pail, hardener

LOCTITE® EA E-20HP™ Adhesive

High Performance

A high strength epoxy with a 20-minute work life. Off-white, toughened, high peel, high shear.

IDH	Package Size
237107	50 ml dual cartridge
237108	200 ml dual cartridge
237109	400 ml dual cartridge

LOCTITE® EA E-60HP™ Adhesive

A high strength epoxy with a 60-minute work life. Off-white, high peel, high shear.

IDH	Package Size
237110	50 ml dual cartridge
237112	400 ml dual cartridge
233984*	43 lb. pail,resin
233986*	42 lb. pail, hardener

LOCTITE® EA E-120HP™ Adhesive

An amber, non-sag, aerospace grade epoxy with an extended open time to allow for the adjustment of large parts.

IDH	Package Size
237128	50 ml dual cartridge
237129	200 ml dual cartridge
237130	400 ml dual cartridge
234012*	44 lb. pail, resin
234014*	40 lb. pail, hardener

LOCTITE® EA E-90FL™ Adhesive

Flexible

A grey, impact-resistant, toughened epoxy with a 90-minute work life.

IDH	Package Size
219298	50 ml dual cartridge
237106	400 ml dual cartridge

LOCTITE® EA E-214HP™ Adhesive

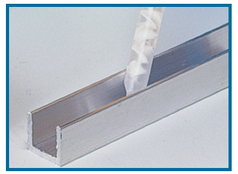
General-Purpose/Heat Cure

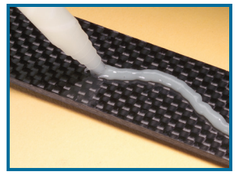
A one-component, acid-free, heat cure epoxy. Light grey, temperature resistant, high strength, non-sag. Noncorrosive to sensitive parts.

IDH	Package Size
234001	300 ml cartridge

* Made-to-order item.
[1] Grit blasted steel.
[2] Aluminum.

Epoxy Adhesives





LOCTITE® Epoxy Adhesive Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	FEATURES	COLOR	VISCOSITY (cP)	MIX RATIO	WORK LIFE[3] (minutes)	FIXTURE TIME (minutes)	CURE TIME (hours)	SHEAR STRENGTH[1] (psi)	TEMPERATURE RESISTANCE
HIGH PERFORMANCE	EA 1C™	1373425 1377344	EPK 4 oz. kit 17 lb. kit	Gap Filling	Off-White	350,000	2.5:1	20	210	24	1,500[2]	250°F (121°C)
HIGH PERFORMANCE	EA 0151™	398470 398454 2826929 2826930	EPK 3.3 oz. kit 50 ml "A" dual cartridge 1 gallon pail, hardener 40 lb. Pail	Extended Work Life	Clear	60,000	2.7:1	60	>180	24	2,675	160°F (71°C)
HIGH PERFORMANCE	EA 9340™	398459 470411	EPK 2.7 oz. kit 5 lb. kit	Non-Sag	Grey	Paste	1:1	90	>180	24	2,300[2]	>180°F (82°C)
HIGH PERFORMANCE	EA 9430™	398461 420338	2 lb. kit 10 lb. kit	Impact Resistant	Off-White	12,000	3.78:1	50	>180	24	4,230	180°F (82°C)
HIGH PERFORMANCE	EA 9460™	398467 398466 398465 416033 420341 475441 475442	50 ml "A" dual cartridge 200 ml "C" dual cartridge 400 ml "C" dual cartridge 5 lb. kit 20 lb. kit 50 lb. pail, hardener 50 lb pail, resin	Non-Sag	Grey	200,000	1:1	50	>180	24	3,500[4]	250°F (121°C)
HIGH PERFORMANCE	EA 9462™	398469	50 ml "A" dual cartridge	High Strength	Beige	70,000	1:1	55	>180	24	4,180	250°F (121°C)
HIGH PERFORMANCE	EA E-20HP™	237107 237108 237109	50 ml "A" dual cartridge 200 ml "C" dual cartridge 400 ml "C" dual cartridge	Easy Mix, Toughened	Off-White	30,000	2:1	20	120	24	3,270	250°F (121°C)
HIGH PERFORMANCE	EA E-20NS™	237119 237121	50 ml "A" cartridge 400 ml "C" dual cartridge	Low Sag	Tan	60,000	2:1	20	150	24	2,790	250°F (121°C)
HIGH PERFORMANCE	EA E-30CL™	237116 237117 237118	50 ml "A" dual cartridge 200 ml "C" dual cartridge 400 ml "C" dual cartridge	Medium Work Life, Chemical Resistant	Clear	10,000	2:1	30	>180	24	3,100	250°F (121°C)
HIGH PERFORMANCE	EA E-40EXP™	1511653	200 ml "C" dual cartridge	Extended Work Life	Black	24,000	2:1	40	N/A	24	3,000	250°F (121°C)
HIGH PERFORMANCE	EA E-40FL™	237102 237103 237104	50 ml "A" dual cartridge 200 ml "C" dual cartridge 400 ml "C" dual cartridge	Medium Fixture	Opaque Grey	70,000	1:1	40	180	24	640	250°F (121°C)
HIGH PERFORMANCE	EA E-40HT™	1086065	50 ml "A" dual cartridge	High Strength	Off-White	430,000	2:1	40	180	24	4,030	300°F (149°C)
HIGH PERFORMANCE	EA E-60HP™	237110 237112 233984* 233986*	50 ml "A" dual cartridge 400 ml "C" dual cartridge 43 lb. pail, resin 42 lb. pail, hardener	High Performance	Off-White	45,000	2:1	60	>180	24	4,320	250°F (121°C)
HIGH PERFORMANCE	EA E-60NC™	237113 237114 237115 233988* 233990*	50 ml "A" dual cartridge 200 ml dual cartridge 400 ml "C" dual cartridge 47 lb. pail, resin 40 lb. pail, hardener	Extended Work Life, Noncorrosive	Black	8,000	1:1	60	>180	24	2,630	250°F (121°C)
HIGH PERFORMANCE	EA E-90FL™	219298 237106	50 ml "A" dual cartridge 400 ml "C" dual cartridge	Extended Work Life	Opaque Grey	40,000	1:1	90	>180	24	810	250°F (121°C)
HIGH PERFORMANCE	EA E-120HP™	237128 237129 237130 234012* 234014*	50 ml "A" dual cartridge 200 ml "C" dual cartridge 400 ml "C" dual cartridge 44 lb. pail, resin 40 lb. pail, hardener	High Temperature/ Chemically Resistant	Amber	30,000	2:1	120	>180	24	4,300	N/A

* Made-to-order item.
[1] Grit-blasted steel.
[2] Etched aluminum.
[3] Work life = time for viscosity to double; Working time = maximum time before assembly (steel).
[4] Block Sheer – grit-blasted mild steel.

LOCTITE® Epoxy Adhesive Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	FEATURES	COLOR	VISCOSITY (cP)	MIX RATIO	WORK LIFE[3] (minutes)	FIXTURE TIME (minutes)	CURE TIME (hours)	SHEAR STRENGTH[1] (psi)	TEMPERATURE RESISTANCE
FAST FIXTURE	EA 608™	398456 398455	4 g foil pack 50 ml "A" dual cartridge	Fast Fixture, Non-Sag	Clear	100,000	1:1	5	15	24	2,980	130°F (54°C)
FAST FIXTURE	EA 615™	398458	EPK 3.2 oz. kit	Fast Fixture	Light Blue	200,000	1:1	10	25	24	3,825	180°F (82°C)
FAST FIXTURE	EA E-00CL™	237095 237096	50 ml "A" dual cartridge 200 ml "C" dual cartridge	Fast Fixture, Flowable	Clear	10,000	1:1	3.5	15	24	2,160	180°F (82°C)
FAST FIXTURE	EA E-00NS™	233962 233964	50 ml "A" dual cartridge 200 ml "C" dual cartridge	Fast Fixture, Low Odor	Translucent	100,000	1:1	3	15	24	1,600	180°F (82°C)
FAST FIXTURE	EA E-05CL™	237099 237101	50 ml "A" dual cartridge 400 ml "C" dual cartridge	Fast Fixture	Clear	2,500	1:1	3	30	24	1,430	180°F (80°C)
FAST FIXTURE	EA E-05MR™	1086598 1086599* 1087602 1087603	50 ml "A" dual cartridge 400 ml "C" dual cartridge 5 gallon pail, part A 5 gallon pail, part B	Moisture-Resistant	Ultra-Clear	25,000	1:1	5	15	24	3,380	250°F (121°C)
ONE-PART	EA 3985™	826124	1 liter bottle	Non-Sag, Heat Cure	Black	50,000	N/A	N/A	N/A	0.5 @ 272°F (133°C)	N/A	300°F (149°C)
ONE-PART	EA E-214HP™	234001	300 ml cartridge	High Strength	Grey	Paste	N/A	N/A	N/A	0.66 @ 248°F (120°C)	4,820	300°F (149°C)
ONE-PART	EA E-310™	2065826	320 ml	High Temperature	Silver-Gray	400,000	N/A	N/A	N/A	0.75 @ 302°F (150°C)	N/A	400°F (204°C)
ONE-PART	EA 9490™	235487	4 oz.	Cures Under Water	Green	Stick	N/A	25	70	24	500	300°F (149°C)
ONE-PART	EA E-04SS™	902242	400 ml	Seam Sealer	Light Gray	2,500	1:01	2.5	6-May	24	1,100	250°F (121°C)
ONE-PART	EA 3335™	219295	1L	UV Cure	Clear	6,000	N/A	N/A	N/A	24	420	350°F (177°C)
ONE-PART	EA 1C-LV ™	398477	50ML	Shock Resistance	Light Tan	55,000	2:01	20	250	24	2,100	250°F (121°C)
ONE-PART	EA E04™	2061385 2061389	50 ml 200 ml	Toughened	White	80,000	1:01	45	120	24	3,000	160°F (71°C)
ONE-PART	EA 11C™	1373435	4 oz	Machineable	Black	350,000	2.5:1	20	210	24	1,500	300°F (149°C)

* Made-to-order item.
[1] Grit-blasted steel.
[2] Aluminum.
[3] Work life = time for viscosity to double; Working time = maximum time before assembly (steel).
[4] Block Sheer – grit-blasted mild steel.

Polyurethane Adhesives

Your Application

- Bond a wide variety of materials, including most metals, plastics and composites
- Exhibit superior moisture and humidity resistance, as well as good toughness and flexibility

WHAT ARE YOU BONDING?

- **Plastic** → UK U-09FL™
- **General-Purpose**
  - UK U-05FL™
  - UK 3364™

Solution

Color	Clear	Off-White	Black
Viscosity (cP)	5,000	100,000	5,000
Mix Ratio	1:1	1:2	1:2
Work Life (mins.)	10	5	5
Fixture Time (mins.)	120	160	30
Cure Time (hrs.)	72	72	72
Shear Strength (psi)**	1,460	930†	2,800†

Product Description

LOCTITE® UK U-09FL™ Adhesive

Plastic Bonder

A two-part, high performance urethane adhesive for plastic bonding with a 10-minute work life. Clear, impact resistant, high peel.

IDH	Package Size
563159	50 ml dual cartridge

LOCTITE® UK U-05FL™ Adhesive

General-Purpose

A high performance urethane adhesive for general-purpose metal bonding with a 5-minute work life. Off-white, highly flexible, impact and moisture resistant, high peel, high shear.

IDH	Package Size
261797	50 ml dual cartridge
237127	400 ml dual cartridge

LOCTITE® UK 3364™ Adhesive

General-Purpose

A fast fixturing, flame resistant, general-purpose polyurethane suitable for bonding or potting. It carries a UL® 94V-0 rating for flame resistance.

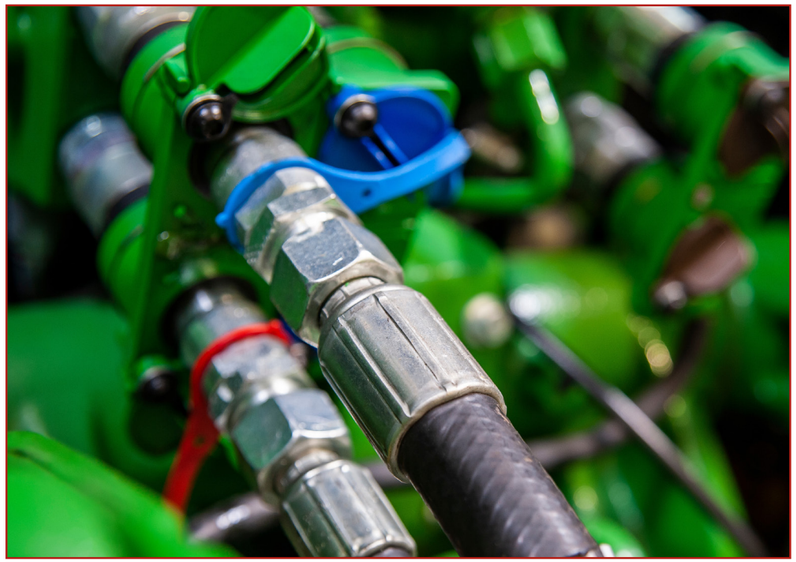
IDH	Package Size
1166733	50 ml dual cartridge

* Made-to-order item.
** Steel.
† Grit-blasted steel.

LOCTITE® Polyurethane Adhesive Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	FEATURES	COLOR	VISCOSITY (cP)	MIX RATIO	WORK LIFE (minutes)	FIXTURE TIME (minutes)	CURE TIME (hours)	SHEAR STRENGTH** (psi)
PLASTIC	UK U-09FL™	563159	50 ml "A" dual cartridge	Plastic Bonder, Flexible	Clear	5,000	1:1	10	120	72	1,460
PLASTIC	UK U-09LV™	568127	50 ml "A" dual cartridge	Low Viscosity, Medium Work Life	Clear	1,000	1:1	10	>180	72	1,146†
GENERAL PURPOSE	UK U-05FL™	261797 237127	50 ml "A" dual cartridge 400 ml "C" dual cartridge	General-Purpose, Flexible	Off-White	100,000	1:2	5	160	72	930†
GENERAL PURPOSE	UK 3364™	1166733	50 ml "A" dual cartridge	General-Purpose, Flame Resistant	Black	5,000	1:2	5	30	72	2,800†
GENERAL PURPOSE	UR 8331™	1162783	1135 totes	Difficult-to-bond substrates, chemical resistant	Light tan to Brown	12,000	1-part	45-60	180	168	Not tested

* Made-to-order item. ** Steel. † Grit-blasted steel.



37	Coatings
39	Protective Coatings
41	Wear-Resistant Coatings

WHY USE LOCTITE® PROTECTIVE COATINGS?

Wear and corrosion are common causes for failure in industrial equipment. Often this equipment is very expensive and repairing and protecting these assets offers a significant cost savings. Surface treatments and protective coatings are the most effective solution for surface protection. LOCTITE® Wear-Resistant and Protective Coatings offer superior protection for new and worn equipment in a variety of applications. Extending service life and increasing efficiency through reduced friction are just two examples of the benefits of using protective coatings to safeguard your assets.

TRADITIONAL METHODS VS. LOCTITE® MODERN SOLUTION

Traditional repair methods such as hard-face welding are time consuming and expensive. Alternatively, LOCTITE® Coatings are easily applied on all surfaces and offer superior compressive strength and protection qualities.

LOCTITE® Coatings can help you restore and rebuild a wide variety of worn parts and put them back in serviceable condition.

WEAR PREVENTION ADDITIONAL RESOURCES

Find additional resources, including case studies, white papers and more on our Wear Prevention page through our website.

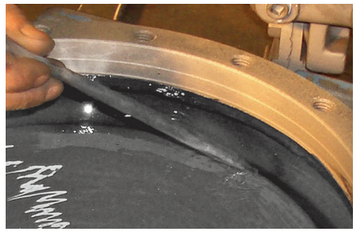
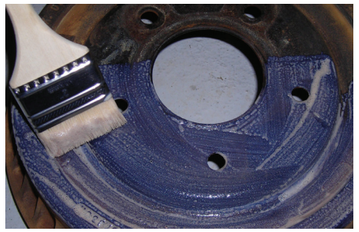
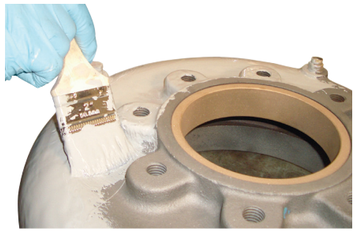
ADDITIONAL RESOURCES

KEY BENEFITS OF LOCTITE® PROTECTIVE COATINGS:

- Fast repair and easy application
- Restore worn surfaces and extend part life
- Make durable repairs right on product line
- Nonshrinking and non-sag formulations for large vertical applications
- May be drilled, tapped or machined after cure
- Excellent chemical resistance for effective protection of assemblies
- Protect against corrosion
- Can also be used to add gripping power or to color code tools

WHAT IS THE PROPER SURFACE PREPARATION FOR WEAR-RESISTANT COATINGS?

A properly prepared surface is one that has been cleaned, dried and abraded. Substrates should be free from contamination, including oils, grease, dust, etc. It is also important that the surface is dry before working with a wear-resistant coating because moisture on the surface can interfere with the curing process. The final step is to abrade the surface to provide an increased surface area for bonding. When working with metals, the surface should be abraded to a near-white metal finish, which also helps to ensure that all surface corrosion is removed.

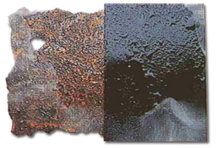




SURFACE RESTORATION MADE EASY!

STOP RUST DEAD WITH LOCTITE® SF 754™ RUST TREATMENT

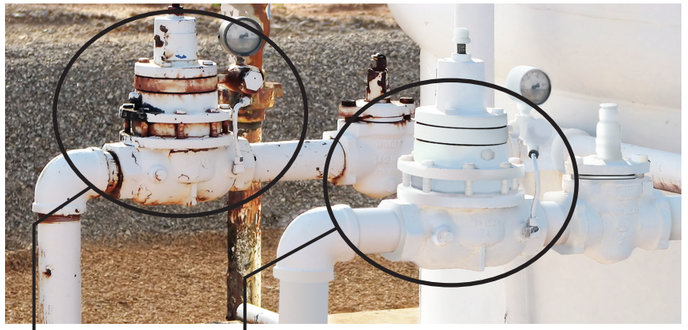
1 Brush or spray SF 754™ Rust Treatment onto any wire-brushed or sanded surface. Leave on some rust. SF 754™ Rust Treatment goes on white. Turns black in 10 minutes.

2 6 Months: SF 754™ Rust Treatment continues to prevent rust even with constant water/salt spray contact.



3 1 Year: Even under continuous high humidity, SF 754™ Rust Treatment still looks new.

4 18 Months Later: SF 754™ Rust Treatment still keeps old rust from coming back. Prevents new rust from starting.



BEFORE

AFTER SF 754™ RUST TREATMENT AND FRESH PAINT

PERFORMANCE CHARACTERISTICS

SF 754™ Rust Treatment's unique capability makes it ideal for maintenance use in applications where sandblasting is not practical or economical. SF 754™ Rust Treatment gives a quality level of conversion and protection, especially when followed by conventional prime and/or finish coats. Most finish paints will not require any additional primer. However, light color latex and metal-filled paints require a solvent base primer on top of SF 754™ Rust Treatment coating before finish application.

SF 754™ Rust Treatment was tested for 100 hours at 95°F, condensing humidity, salt spray (ASTM B117-73), and satisfactory performance was obtained. This test is equivalent to two years of outdoor exposure. Protection is enhanced with SF 754™ Rust Treatment plus an overcoat such as epoxy, alkyd, urethane, or chlorinated rubber.

Protective Coatings

Your Application

- Protect, seal, insulate, prevent corrosion, add gripping power and color code tools
- Provide excellent resistance to acids, alkalis, salt and moisture, which can damage equipment

SURFACE PROTECTION AND RUST PREVENTION

- **Corrosion Protection**
  - **General-Purpose**
    - **Color Coding**
  - → **PC 7319™**
- **Rust Treatment** → **SF 754™**

Solution

	SF F720™	PC 7319™	SF 754™
Description	Rubber Coating	Epoxy Coating	Rust Converter
Color	Red	Grey	Matte Black
Temperature Range	Up to 200°F (93°C)	Up to 150°F (65°C)	Up to 250°F (121°C)
Cure/Dry Time	24 hrs.	28 hrs.	24 hrs.

Product Description

COATING HINTS

HELPFUL HINTS

- LOCTITE® SF F720™ Coating colors can be mixed to make different colors.

LOCTITE® SF F720™ Tough Rubber Coating

Inhibits Rust and Corrosion, Seals, Insulates and Identifies

A solvent-based, modified thermoplastic liquid coating that dries to a durable, flexible, rubber-like protective coating on parts and equipment. Dip, spray or brush to apply. Great for tools, metals, electrical connections, masonry, wood, conveyors, glass, rope and fabric.

IDH	Package Size
338131	.96 gallon can, red

LOCTITE® PC 7319™ Nordbak® Chemical Resistant Coating

Smooth, glossy, low-friction finish protects against turbulence, abrasion and cavitation. This advanced epoxy protects equipment from extreme chemical attack and corrosion. Low viscosity epoxy can be applied by bristle brush. Not a wear-resistant coating.

IDH	Package Size
209816	11 lb. kit

LOCTITE® SF 754™ Rust Treatment

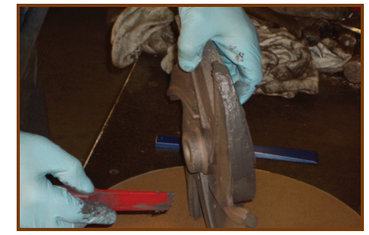
Converts existing rust (rust required) into a stable base. Cured product acts as a primer ready for painting with oil- or solvent-based paint. Protects surface from corrosion. Use on metal pipes, valves, fittings, outside surfaces of storage tanks, fences, guardrails, wrought iron furniture, conveyors, and construction and agricultural equipment.

IDH	Package Size
160802	1 gallon bottle

LOCTITE® Protective Coating Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	COLOR	TEMPERATURE	DRY TIME	FULL CURE	COVERAGE	APPLICATION METHOD	AGENCY APPROVALS
LIQUID RUBBER COATINGS	SF F720™	338131	.96 gallon can	Red	Up to 200°F (93°C)	4 hours (allow 30 minutes between coats)	24 hours at ambient temperature	180 sq. ft. per gallon at 2.5 mil thickness	Dip, brush or spray	CFIA Listed
	SF 754™	160802	1 gallon bottle	Converts from a White Liquid to Matte Black	Up to 250°F (121°C) intermittent	Re-coat in 20 minutes	24 hours at ambient temperature	200 sq. ft per gallon at 2.5 mil thickness	Brush or commercial sprayer	ABS, CFIA Listed
	PC 9462™	2484039	55 gallon drum	Blue Green	-20°F to 194°F (-30°C to +90°C)	40 min	10 hours at ambient temperature	13,900 cm^3 per 19 liter kit (850 in^3 per 5 gallon kit) // 5,576 cm^3 per 7.5 liter kit (340 in^3 per 2 gallon kit).	Pouring	N/A
	PC 9020™	1700889 1694850 1694859	35 lbs 2 gallon pail 5 gallon pail	Blue	-20°F to 220°F (-30°C to 105°C)	25 min	24 hours at ambient temperature	13,900 cm^3 per 19 liter kit (850 in^3 per 5 gallon kit) // 5,576 cm^3 per 7.5 liter kit (340 in^3 per 2 gallon kit).	Pouring	N/A
	PC 9440™	2573885 2573975	1.1 L 3.8 L	Clear	-13°F to 176°F (-25°C to 80°C)	60 min	24 hours at ambient temperature	@ 50 microns (2 mil) : 31m2 per 3.8L (330 ft2 per gallon)	Spray or Wipe On	None
SPECIALTY COATINGS	PC 7319™	209816	11 lb. kit	Grey	Up to 150°F (65°C) wet; >200°F (93°C) dry	28 hours	48 hours	74 sq. ft. at 20 mil thickness	Roll or brush on	CFIA Listed
	PC 4400™	2573885 2573975	1.1 L 3.8 L	Clear	-13°F to 176°F (-25°C to 80°C)	60 min	24 h	@ 50 microns (2 mil) : 31 m^2 per 3.8 L (330 ft^2 per gallon)	Spray or Wipe On	None

Wear-Resistant Coatings



Your Application

- Utilize the superior wear properties of ceramic and the convenience of two-part epoxies to protect equipment like pumps, chutes and augers in harsh industrial environments
- Stand up to almost any corrosion, abrasion and wear problem
- Make large-scale repairs that last

ARE YOU EXPERIENCING CORROSION OR WEAR?

- **Wear**
  - **Sliding abrasion or impact resistance?**
    - **Sliding**
      - **Particle Size**
        - **Small Particle/Slurry** → PC 7332™ / PC 7227™ PC 7228™ / PC 7255™ / PC 7222™
        - **Large Particle** → PC 7218™ / PC 9313™
    - **Impact** → PC 9593™
- **Corrosion (e.g., chemical, rust, etc.)** → PC 7319™

COATING HINTS

HELPFUL HINTS

- You may smooth out any composite repair product using isopropyl alcohol (IPA) or acetone and a gloved hand.
- When applying two coats of LOCTITE® Nordbak® Brushable Ceramic, a different color can be used for each: grey and white. When the first coat begins to wear, the second color coat will show through, providing an accurate visual indicator of wear.

Solution

	PC 7332™	PC 7227™ PC 7228™	PC 7255™	PC 7222™	PC 7218™	PC 9313™	PC 9593™	PC 7319™
Color	Grey	Grey or White	Green	Dark Grey	Grey	Light Grey	Blue	Grey
Maximum Temperature	248°F (120°C)	200°F (93°C)	230°F (110°C)	225°F (107°C)	250°F (121°C)	250°F (121°C)	248°F (120°C)	200°F (93°C)
Working Time*	30 min.	30 min.	40 min.	30 min.	20 min.	30 min.	15 min.	20 min.
Cure Time*	6 hrs.†	24 hrs.	6 hrs.	6 hrs.	7 hrs.†	6 hrs.	4 hrs.	16 hrs.

Product Description

LOCTITE® PC 7332™ Nordbak® Wear Prevention Coating

Designed to protect, rebuild and repair processing equipment subject to severe erosion and abrasion.

IDH	Package Size
2751067	10 kg kit

LOCTITE® PC 7227™, PC 7228™ Nordbak® Brushable Ceramic

Smooth, wear-resistant, low-friction coating to combat turbulence and cavitation on components such as pump housings and impellers.

IDH	Package Size
209826	Grey 2 lb. kit
209825	Grey 6 lb. kit

LOCTITE® PC 7228™ Nordbak® Brushable Ceramic

IDH	Package Size
209668	White 2 lb. kit

LOCTITE® PC 7255™ Nordbak® Sprayable Ceramic

Smooth, wear-resistant, low-friction coating to combat turbulence and cavitation on components such as pump housings and impellers.

IDH	Package Size
1389509	Green 900 ml cartridge

LOCTITE® PC 7222™ Nordbak® Wear Resistant Putty

Ceramic fibers give this trowelable putty excellent wear and abrasion resistance with a smooth, low-friction finish. Can be used over other wearing compounds to fill voids.

IDH	Package Size
235626	1 lb. kit
209827	3 lb. kit

LOCTITE® PC 7218™ Nordbak® Wearing Compound

Trowelable compound that protects against sliding abrasion. Use to rebuild and protect chutes, pump housings, elbows, cyclones and material handling equipment.

IDH	Package Size
1324008	5 lb. kit
1323940	25 lb. kit

LOCTITE® Nordbak® 7223™ Wearing Compound Cure Accelerator

IDH	Package Size
1728412	2.49 lb. can

LOCTITE® PC 9313™ Nordbak® High Impact Wearing Compound

Rubber-modified compound absorbs impact. Recommended where both sliding abrasion and impact are present.

IDH	Package Size
1327836	25 lb. kit

LOCTITE® PC 9593™ Nordbak® Wear Prevention Coating

Designed to protect, rebuild and repair processing equipment subjected to impact due to dropping, rolling, and sliding of large particles. Its faster cure and increased impact resistance outperforms other products in the market.

IDH	Package Size
2755354	10 kg kit

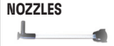
LOCTITE® PC 7319™ Nordbak® Chemical Resistant Coating

Smooth, glossy, low-friction finish protects against turbulence, abrasion and cavitation. This advanced epoxy protects equipment from extreme chemical attack and corrosion. Low viscosity epoxy can be applied by brush.

IDH	Package Size
209816	11 lb. kit

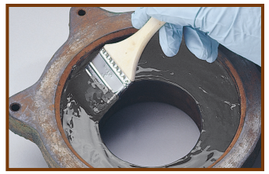
NOTE: Available in trowelable and brushable formulations with special fillers for tough conditions.

NORDBAK® SPRAYABLE CERAMIC EQUIPMENT

LOCTITE® PRODUCT	IDH NUMBER	DESCRIPTION
PNEUMATIC HANDGUN	476898	Dual cartridge handgun; 2:1 ratio. Spray adapter with pressure regulator, gauge, air hose.
SPRAYABLE CERAMIC MIX NOZZLES 	1248606	Mix nozzle 6.4 mm/24 elements include orifice restrictor OR4

* At 77°F (25°C).
**Made-to-order item.
† Cure time can be reduced to 2-3 hours with cure accelerator.

Wear-Resistant Coatings

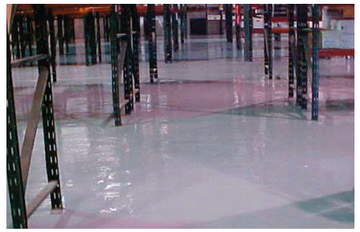


LOCTITE® Wear-Resistant Coating Properties & Applications Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	COVERAGE (FT² @ 1/4 IN. THICKNESS)	COLOR	MAXIMUM OPERATING TEMPERATURE (°F)	COMPRESSIVE STRENGTH (psi)	SHORE HARDNESS	WORKING TIME (MINUTES) 77°F	FUNCTIONAL CURE (HOURS) 77°F	MIX RATIO BY VOLUME (R:H)		MIX RATIO BY WEIGHT (R:H)	AGENCY APPROVALS	FINE PARTICLE ABRASION	MULTIPLE PARTICLE ABRASION	IMPACT RESISTANCE	CHEMICAL CORROSION PROTECTION	HIGH TEMPERATURE RESISTANCE	FAST CURE	CORROSION PROTECTION	TILE INSTALLATION	PUMP REPAIR	ELBOWS	FAN HOUSINGS	CYCLONES	CHUTES
COARSE/ LARGE PARTICLE ABRASION	PC 7218™	1324008 1323940	5 lb. kit 25 lb. kit	1.75 8.7	Grey	250	16,000	D 90	30	7 ‡	2:1		2:1	NEHC, NAVSEA									△	△	▲	△	▲
FINE PARTICLE ABRASION	PC 7317™	209824 209676	3 lb. kit 25 lb. kit	8.7	Grey	250	15,000	D 85	30	6 §	4:1		4:1	ABS, CFIA, NEHC, NAVSEA	▲	△							▲	▲	△	▲	△
	PC 7303™	235622	25 lb. kit	8.7	Grey	450	15,000	D 90	30	N/A	4:1		4:1	N/A	▲	△			▲				▲	▲	△	▲	△
	PC 7455™	235598	6 lb. kit	2.3	Blue	225	12,000	D 90	10	3	2:1		2.27:1	CFIA	▲	△				▲			▲	▲	△	▲	△
	PC 7222™	235626 209827	1 lb. kit 3 lb. kit	0.37 1.11	Grey	225	11,600	D 89	30	6	2:1		2:1	N/A				△			△		▲	▲	△	▲	△
	PC 7332™	2751067	10 KG	0.74 m² @ 0.6 cm / 10 kg	Grey	-30°C to +120°C	14,000	85D	30	6	4:01		4:01	N/A													
LIQUID/SLURRY TURBULENCE	PC 7227™	209826 209825	2 lb. kit 6 lb. kit	12* 36*	Grey	200	10,180	D 85	30	24	2.75:1		4.8:1	CFIA, NSF				△			▲		△				
	PC 7228™	209668	2 lb. kit	12*	White	200	10,866	D 85	30	24	2.8:1		4.5:1	CFIA				△			▲		△				
	PC 7255™	1389509	900 ml cartridge	37	Green	230	15,400	D 86	40	6	100:50		100:50	N/A							▲		△				
	PC 7234™	235601	2 lb. kit	12*	Red	550	14,800	D 88	120	N/A	2.6:1		4.25:1	N/A				△	▲		▲		△				
IMPACT WEAR RESISTANCE	PC 9313™	1327836	25 lb. kit	8.75	Grey	250	12,000	D 85	30	6	2:1		2:1	N/A			▲										
	PC 9593™	2755354	10KG	2.64 ft.² @ 0.25 in. / 6.6lbs.	Blue	-22°F to +248°F (-30°C to +120°C)	6,700	85D	15	4	2:01		2:01	N/A			▲			▲				▲			▲
SPECIALTY COATINGS	PC 7319™	209816	11 lb. kit	75 sq. ft. at 20 ml thickness	Grey	150 wet/ >200 dry	9,840	D 85	20	16	2.3:1		3.4:1	CFIA				▲			▲		▲				
	PC 7255™	2462905 2464244	1.125 L	2.7 m²/kg	Green Gray	110°C	15,400	86D	40 to 70	4	100:50:00		100:50:00	WRAS				▲			▲		△				
	PC 7230™	235631	25 LB	0.79 ft.² @ 0.25 in. / 22 lbs.	Dark Grey	446°F (230°C)	15,000	90D	30	7	4:01		3.9:1	N/A					▲				△	△	△	△	△
	PC 9599™	2516930	6 LB	2.7 m²/kg	Gray	110°C	15,400	86D	40 to 70	4	100:50:00		100:50:00	WRAS						▲			△	△	△	△	△
	PC 7383™	2395759	10 KG	1.26 m² @ 0.25 in. / 10 kg	Black	-4°F to 176°F (-20°C to +80°C)	N/A	90A	50	24	100:47:00		100:40:00	N/A								▲	△	▲	△	△	△

* 20 mil thickness. ** in.² at 1/4 in. thickness. *** Made-to-order item. † At 250 micron. †† At 1/8 in. thick.
‡ Cure time can be reduced using Loctite® Nordbak® 7223™ Wearing Compound Cure Accelerator, IDH number 1728412 (see page 56)
§ Cure time can be reduced using LOCTITE® Nordbak® 7224™ Pneu-Wear Cure Accelerator, IDH number 1736175 (see page 55)
△ Good Choice ▲ Preferred Choice

PLEASE NOTE: Properties are based on mixing 1 lb. mass at 77°F, ultimate cure.



45	Flooring & Concrete Repair
47	Anti-Slip Coatings
49	Flooring, Concrete Repair & Grouting

WHY USE LOCTITE® FLOORING AND CONCRETE REPAIR PRODUCTS?

In today's harsh industrial environments, facility floors, concrete floors and other concrete structures endure constant abuse. The family of LOCTITE® concrete repair products and LOCTITE® floor coating systems provides the solutions needed to keep facilities looking good and performing great. The systems include concrete repair products, primers and sealants, topcoats, and sealants for expansion and control joints. These two- or three-part, premeasured epoxy and urethane systems are non-shrinking and will bond to concrete without the use of special bonding agents. The full line includes water-based and 100% solids products. They are appropriate for vertical, horizontal and overhead surfaces. The full line includes products in a wide variety of compressive strengths, chemical and temperature resistance.

WHAT CONSIDERATIONS ARE NECESSARY WHEN CHOOSING A LOCTITE® FLOORING REPAIR PRODUCT?

- Anti-Slip Coating: There are several factors to consider – the most important of which is profile size. A more aggressive profile will provide better traction and a higher coefficient of friction. A lower profile will provide a better walking surface and will be easier to clean, in addition to the anti-slip properties. It is also important to consider the substrate that is being coated and the type of exposure the coating will endure. Information and charts on the following pages will help guide you through the selection process.
- Flooring, Concrete Repair & Grouting: When choosing a floor or concrete repair product, the important things to consider are substrate condition, traffic and chemical exposure, and time available to complete the repair. Information and charts on the following pages will help you choose a product that will provide superior protection against the harshest environments or get your floor back in service in under an hour!

KEY BENEFITS OF LOCTITE® FLOORING AND CONCRETE REPAIR PRODUCTS:

- Concrete protection
- Chemical resistance
- Improved facility safety
- Available in variety of colors
- Significantly higher compressive strengths than concrete
- Varying cure times ranging from 15 minutes to 24 hours, depending on product

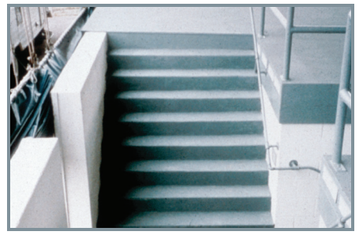
HOW IMPORTANT IS SURFACE PREPARATION?

A floor repair is only as good as the concrete or substrate to which it is adhering. It is important to check thoroughly for damaged or loose concrete, because a failure of the substrate below the repair would eventually degrade the integrity of the repair itself. Surface preparation is the most important aspect of any concrete or floor repair.

WHEN DO I NEED TO USE A PRIMER?

It is always recommended that a primer be used before applying an anti-slip coating. Primers increase adhesion to the substrate and also seal porosity when applied on concrete. The decision of which primer to use is based on the product being used and the substrate. The charts in this section will assist you in choosing the right primer for your application.

Anti-Slip Coatings



Your Application

- Provide tough, long-lasting anti-skid surfaces for added safety
- Can be easily applied using LOCTITE® phenolic or bristle rollers to concrete, metal or wood surfaces
- Stand up to heavy traffic and harsh environments
- For maximum adhesion, use LOCTITE® primers

Solution

DO YOU HAVE PEDESTRIAN OR VEHICULAR TRAFFIC?

Pedestrian Traffic

- Barefoot Traffic, Highly Flexible, UV Resistance/ Outdoor Applications → PC 6233™ Flexible Low Profile Exterior Grade
- Light Pedestrian Traffic, Enhanced Cleanability, Indoor Applications → PC 6317™ Low Profile Pedestrian Grade
- Asphalt, Outdoor or Flexible Applications → PC 6255™ Acrylic Pedestrian Grade
- Light Rolling or Heavy Pedestrian Traffic → PC 6261™ Heavy Duty Pedestrian Grade

Vehicular Traffic

- Heavy Rolling Equipment Traffic → PC 6311™ Vehicular Grade
- Heavy Vehicular Traffic in Odor-Sensitive Areas → PC 6315™ Zero V.O.C.

	PC 6233™ Flexible Low Profile Exterior Grade	PC 6317™ Low Profile Pedestrian Grade	PC 6255™ Acrylic Pedestrian Grade	PC 6261™ Heavy Duty Pedestrian Grade	PC 6311™ Vehicular Grade	PC 6315™ Zero V.O.C.
Color	Black/Grey	Black/Grey/ Safety Yellow	Black/Grey	Black/Grey/ Safety Yellow	Black/Grey	Black/Grey
Coverage per Gallon (ft.²/ meter²)	70 ft.² (6.5 m²)	90 ft.² (8.3 m²)	70 ft.² (6.5 m²)	50 ft.² (4.7 m²)	40 ft.² (3.7 m²)	35 ft.² (3.3 m²)
Working Time (minutes)	N/A	60	N/A	N/A	120	60
Recommended Primer on Concrete or Porous Surfaces	N/A	LOCTITE® PC 7641™ Water-Based Epoxy Primer/Sealer	N/A	LOCTITE® PC 7641™ Water-Based Epoxy Primer/Sealer	LOCTITE® PC 7641™ Water-Based Epoxy Primer/Sealer	LOCTITE® PC 7641™ Water-Based Epoxy Primer/Sealer
Recommended Primer on Metal Surfaces	LOCTITE® PC 7643™ Metal Primer	LOCTITE® PC 7643™ Metal Primer	LOCTITE® PC 7643™ Metal Primer	LOCTITE® PC 7643™ Metal Primer	LOCTITE® PC 7643™ Metal Primer	LOCTITE® PC 7643™ Metal Primer
Profile Illustration						

Product Description

LOCTITE® PC 6233™ Flexible Low Profile Exterior Grade

Single component, water-based, anti-slip coating. Designed for barefoot traffic in water-prone areas. It is chip-, scuff- and impact-resistant, as well as UV-resistant and flexible. Ideal for recreation areas as well as industrial and institutional facilities.

IDH	Package Size
1354766	1 gallon can, grey
1352349	1 gallon can, black

LOCTITE® PC 6317™ Low Profile Pedestrian Grade

A two-component coating that combines water-borne epoxy resins and tough, fine-grained abrasives to produce a self-sealing, non-slip floor and deck coating. Enhanced cleanability, chemical resistance and coverage are but a few of the reasons Loctite® PC 6317™ Low Profile Pedestrian Grade is the first choice for low-profile applications.

IDH	Package Size
1629607	1 gallon kit, black
1633986	5 gallon kit, black
1625197	1 gallon kit, light grey
1629597	5 gallon kit, light grey
1601332	1 gallon kit, safety yellow

LOCTITE® PC 6255™ Acrylic Pedestrian Grade

A single-component, elastomeric, anti-slip floor and deck coating for optimum adhesion to asphalt and flexible applications. Best for outdoor applications.

IDH	Package Size
1620706	1 gallon can, grey
1629598	1 gallon can, black

LOCTITE® PC 6261™ Heavy Duty Pedestrian Grade

Chemical Resistant

For areas with heavy pedestrian or light rolling traffic. Ideal for ramps, walkways, locker rooms, stairs and assembly areas. Fire retardant when cured.

IDH	Package Size
1602679	1 gallon can, black
1602121	1 gallon can, grey
1629599	5 gallon can, grey
1592315	1 gallon can, safety yellow

LOCTITE® PC 6311™ Vehicular Grade

Withstands even the heaviest rolling equipment traffic. Resists liquids as harsh as jet fuels and hydraulic fluids. Superior adhesion forms a solid bond to metal, concrete and wood.

IDH	Package Size
1602678	1 gallon kit, black
1602674	1 gallon kit, grey
1625203	5 gallon kit, grey

LOCTITE® PC 6315™ Zero V.O.C.

This 100% reactive, solvent-free epoxy has the most aggressive profile in the LOCTITE® line. Use in odor-sensitive areas such as wineries, food processing plants, hospitals or confined spaces.

IDH	Package Size
1624641	1 gallon kit, black
1716378	1 gallon kit, grey

HELPFUL HINTS

USE A PRIMER

- Use a primer before applying any anti-slip coating to increase adhesion and seal porosity on concrete surfaces. See the Recommended Primers above for assistance in choosing the right primer for your application.

LOCTITE® Anti-Slip Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	COLOR	COVERAGE	MIX RATIO BY WEIGHT/VOLUME (RESIN : HARDENER)	MIXTURE TEMP.	WORK TIME (MIN.)	FUNCTIONAL CURE (HOURS)*
ADHESIVES/COATINGS	PC 6317™ LOW PROFILE PEDESTRIAN GRADE	1629607 1633986 1625197 1629597 1601332	1 gal. kit 5 gal. kit 1 gal. kit 5 gal. kit 1 gal. kit	Black Black Light Grey Light Grey Safety Yellow	90 ft.²	5.25:1/3.5:1	140°F	60	24/72
ADHESIVES/COATINGS	PC 6233™ FLEXIBLE LOW PROFILE EXTERIOR GRADE	1354766 1352349	1 gal. can 1 gal. can	Grey Black	70 ft.² per gallon	Single Component	140°F	N/A	24/72
ADHESIVES/COATINGS	PC 6261™ HEAVY DUTY PEDESTRIAN GRADE	1602679 1602121 1629599 1592315	1 gal. can 1 gal. can 5 gal. can 1 gal. can	Black Grey Grey Safety Yellow	50 ft.² per gallon	Single Component	140°F	N/A	12/72
ADHESIVES/COATINGS	PC 6311™ VEHICULAR GRADE	1602678 1602674 1625203	1 gal. kit 1 gal. kit 5 gal. kit	Black Grey Grey	40 ft.² per gallon	17.6:1 / 8.9:1	140°F	120	12/48
ADHESIVES/COATINGS	PC 6315™ ZERO V.O.C.	1624641 1716378	1 gal. kit 1 gal. kit	Black Grey	35 ft.² per gal.	8.5:1 / 3.75:1	140°F	60	24/72
ADHESIVES/COATINGS	PC 6255™ ACRYLIC PEDESTRIAN GRADE	1620706 1629598	1 gal. can 1 gal. can	Grey Black	70 ft.²	Single Component	140°F	N/A	4/24
PRIMERS/SEALERS	PC 7643™ METAL PRIMER	1624642	1 gal. kit	Grey	250 ft.²	5.25:1/3.1	140°F	240	12
PRIMERS/SEALERS	PC 6253™ ACRYLIC PRIMER	1620703	1 gal. pail	Clear	250 ft.²	Single Component	140°F	N/A	1 to 2
PRIMERS/SEALERS	PC 7641™ WATER-BASED EPOXY PRIMER/ SEALER	1617851 1617855	1 gal. kit 5 gal. kit	Clear	320 ft.²	1:1 / 3:1	140°F	120	3 to 6

* Cure Time is for light pedestrian/heavy pedestrian traffic. Values are temperature- and thickness-specific.
PLEASE NOTE: For best adhesion results, it is critical to follow surface preparation procedures outlined in the Technical Data Sheet for the primer/sealer to be used in your application.

LOCTITE® Anti-Slip Applications Chart

LOCTITE® PRODUCT	ASPHALT	WOOD	CONCRETE	METAL	FLEXIBLE COATING	WATER RESISTANT	CHEMICAL RESISTANT	ANTI-SLIP (PEDESTRIAN)	ANTI-SLIP (VEHICULAR)	ANTI-SLIP (ZERO V.O.C.)
PC 6317™ LOW PROFILE PEDESTRIAN GRADE		▲	▲	▲			△	▲		
PC 6233™ FLEXIBLE LOW PROFILE EXTERIOR GRADE	▲	▲	▲		▲	▲	△	▲		
PC 6261™ HEAVY DUTY PEDESTRIAN GRADE		▲	▲	▲			▲	▲	△	
PC 6311™ VEHICULAR GRADE		▲	▲	▲			▲	△	▲	
PC 6315™ ZERO V.O.C.		▲	▲	▲			▲	△	△	▲
PC 6255™ ACRYLIC PEDESTRIAN GRADE	▲	▲	▲	▲	▲	▲		▲		

△ Good Choice ▲ Preferred Choice

ADDITIONAL RESOURCES

COATING ACCESSORIES

LOCTITE® Bristle Roller Cores

Use with LOCTITE® PC 7643™ Metal Primer, and PC 7641™ Water-Based Epoxy Primer/Sealer.

IDH# 236388 1 per case

Flooring, Concrete Repair & Grouting

Your Application

- Repair cracked concrete floors
- Keep facility floors, concrete floors and other concrete structures safe, looking good and performing great

GENERAL CONCRETE OR FLOOR REPAIRS?

General Concrete Repairs	Floor Repairs	General Concrete and Floor Repairs	
Crack Filler	General Floor Repairs		
Horizontal Application	High Compressive Strength	Fast Cure, for Pours Greater than 1/4 in.	Fast Cure, for Pours Less than 1/4 in.
Solution			
PC 6231™ Crack Filler SL	PC 9416™ Floor Fill	PC 9410™ (Known as Magna-Crete™)	PC 9620™ (Known as Magna-Grout™)

Color	Grey	Grey	Grey	Grey
Maximum Temperature	120°F (49°C)	225°F (107°C)	2000°F (1093°C)	2000°F (1093°C)
Compressive Strength	N/A	13,000 psi	13,000 psi	13,000 psi
Working Time	3 to 6 min.	40 min.	10 min.	5 to 20 min.
Functional Cure	90 min.	16 hrs.	1 to 2 hrs.	1 to 2 hrs.
Chemical Resistance		Good	Fair	Fair

Product Description

LOCTITE® PC 6231™ Crack Filler SL

Two-component, self-leveling, flexible formula in a coaxial cartridge. Can be used indoors or outdoors. Bonds concrete, block, brick, stone, wood and metal.

IDH	Package Size
1291113	8.6 fl. oz. cartridge (one nozzle included)

LOCTITE® PC 9416™ Floor Fill

A three-component, self-leveling, non-shrinking epoxy floor repair system. 100% solid, epoxy-based system for repairing holes in floors, spalled areas, ramps, stairs, cracks in floors, and for use in grouting applications. Stronger than concrete, it bonds to almost any clean substrate, and provides corrosion and chemical resistance. Typical dry service temperature ranges from -20°F to 225°F (-29°C to 107°C).

IDH	Package Size
235632	10 lb. kit
235633	40 lb. kit

LOCTITE® PC 9410™ High Strength, Rapid Setting Concrete Repair Material (known as Magna-Crete™)

This two-component magnesium phosphate cement sets rapidly and has a very high early strength. Ideal for road and aircraft runway repairs, which can typically be driven over after 45 minutes. It bonds to new and old concrete, as well as most construction materials including wood, glass and steel. No water additive, can be applied at temperatures as low as -15°F (-26°C).

IDH	Package Size
235572	1 gallon kit
235573	5 gallon kit
1012500	1 lb. 12 oz. kit

LOCTITE® PC 7257™ PRODUCTS:

708253	1 lb. tub - Winter Additive
708252	1 lb. tub - Summer Additive

LOCTITE® PC 9620™ High Strength, Rapid Setting Grout and Concrete Repair (known as Magna-Grout™)

A two-component, rapid-setting concrete repair and grouting system with the same properties as LOCTITE® PC 9410™ (known as Magna-Crete™) but containing smaller aggregate (less than 1/4 in.) so that the mixed material can be poured thinner for resurfacing applications and feather edging.

IDH	Package Size
1476710	5 gallon kit

LOCTITE® PC 7257™ PRODUCTS:

708253	1 lb. tub - Winter Additive
708252	1 lb. tub - Summer Additive

HELPFUL HINTS

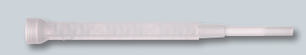
- When checking for damaged concrete, tap around the repair area with a hammer and listen for hollow spots. This will help to reveal damaged areas that are not apparent.
- Use LOCTITE® PC 7257™ Summer Additive or Winter Additive with LOCTITE® PC 9410™ (known as Magna-Crete™) and with LOCTITE® 9620™ (known as Magna-Grout™) to accelerate or slow the cure in high-temperature or speed the cure in low-temperature environments.

ADDITIONAL RESOURCES

LOCTITE® 300 ml Single-Axis Cartridge Mix Nozzle

Threaded Tip, 10" overall length, 11.2 mm inner diameter; 20 elements.

IDH # 1100962 3 pack



ADDITIONAL RESOURCES

LOCTITE® Heavy Duty Manual Cartridge Applicators

The non-sag, high-viscosity formula of LOCTITE® EA 7363™ Anchor Bolt Grout HP requires a heavy-duty dispensing tool.

IDH # 1093940 Use with 300 ml cartridges
1093981 Use with 600 ml dual cartridges

Flooring, Concrete Repair & Grouting

LOCTITE® Flooring, Concrete Repair & Grouting Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	COLOR	COVERAGE	MIXTURE VISCOSITY (cP)	MAXIMUM TEMPERATURE	COMPRESSIVE STRENGTH (psi)	WORKING TIME	FUNCTIONAL CURE	MIX RATIO BY VOLUME (RESIN : HARDENER)	MIX RATIO BY WEIGHT (RESIN : HARDENER)	AGENCY APPROVALS
GROUTS	PC 9626™ DEEP POUR GROUT	235637	5 gallon kit	Black	660 in.^{3}	Pourable	225°F	14,500	30 minutes	24 hours	4.1:1 to 8.2 Filler	16.4:3.6 to 80 Filler	CFIA Listed
GROUTS	PC 9422™ SUPER GROUT	265477	5 gallon kit	Red	620 in.^{3}	Pourable	225°F	13,800	4.75 hours	24 hours	N/A	10:5 to 85 Aggregate	N/A
ANCHOR BOLT GROUT	EA 7363™ ANCHOR BOLT GROUT HP**	1108757	8.6 fl. oz. single cartridge	Grey	15.5 in.^{3} 37.36 in.^{3}	N/A	110°F 115°F	9,880	20 minutes	4 hours	1:1	100:80	N/A
FLOOR REPAIR & RESURFACING	PC 9416™ FLOOR FILL	235632 235633	10 lb. kit 40 lb. kit	Grey	133 in.^{3} 532 in.^{3}	Semi-Pourable	225°F	13,100	40 minutes	16 hours	4.6:1 to 9.8 Filler	16:3.2 to 80.8 Filler	CFIA Listed
FLOOR REPAIR & RESURFACING	PC 9410™ *(KNOWN AS MAGNA-CRETE™)*	235572 235573 1012500	1 gallon kit 5 gallon kit 1 lb. 12 oz. kit	Grey	170 in.^{3} 770 in.^{3}	N/A	2000°F	13,000	5 to 20 minutes	1 to 2 hours	N/A	N/A	CFIA Listed
FLOOR REPAIR & RESURFACING	PC 9620™ *(KNOWN AS MAGNA-GROUT™)*	1476710	5 gallon kit	Grey	170 in.^{3} 770 in.^{3}	N/A	2000°F	13,000	5 to 20 minutes	1 to 2 hours	N/A	N/A	N/A
FLOOR REPAIR & RESURFACING	PC 7257™ FOR PC 9410™ and PC 9620™	708253	1 lb. tub for Winter Use	White	N/A	N/A	2000°F	13,000	5 to 20 minutes	(+)10 minutes	N/A	N/A	N/A
FLOOR REPAIR & RESURFACING	PC 7257™ FOR PC 9410™ and PC 9620™	708252	1 lb. tub for Summer Use							(-)10 minutes			
FLOOR REPAIR & RESURFACING	PC 6231™ CRACK FILLER SL	1291113	8.6 fl. oz. cartridge (one nozzle included)	Grey	15.5 in.^{3}	Flowable	120°F (49°C)	N/A	3 to 6 minutes	90 minutes	1:1	N/A	N/A
CHOCKING COMPOUND	PC 7202™ MARINE CHOCKING COMPOUND	97572	2 gallon kit	Green	378 in.^{3}	90,000	250°F	22,000	10 minutes	24 hours	100:11.6	100:6.9	ABS, CFIA Listed
CHOCKING COMPOUND	PC 7202™ MARINE CHOCKING COMPOUND	476904 235582	7 lb. kit 21.5 lb. kit	Orange	132 in.^{3} 378 in.^{3}								ABS, NAVSEA, NEHC

* Uses activator: LOCTITE® PC 7257™ Activator - IDH Number 976786.
** Requires use of applicator and nozzles.

LOCTITE® Flooring, Concrete Repair & Grouting Applications Chart

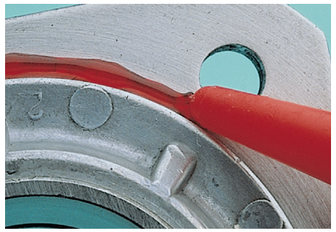
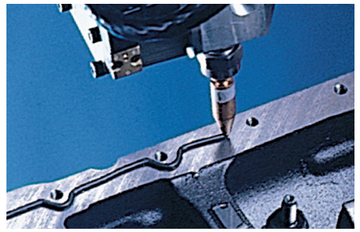
	LOCTITE® PRODUCT	ANCHOR BOLT FASTENING	CHOCKING (SHIPS)	CONCRETE FLOOR REPAIR	NON-SAG CONCRETE REPAIR	ENGINE INSTALLATION	GROUT LIGHT EQUIPMENT 1 IN. OR LESS	GROUT HEAVY EQUIPMENT 1-6 IN.	GROUT HEAVY EQUIPMENT TO 18 IN.	LEVELING EQUIPMENT	ACID/CHEMICAL RESISTANT FLOOR REPAIR	RAMPS & LOADING DOCKS	HIGHWAYS & ROADWAYS	LEVELING FLOORS
GROUTS	PC 9626™ DEEP POUR GROUT					△	△	▲		△				
GROUTS	PC 9422™ SUPER GROUT					△		△	▲	△				
ANCHOR BOLT GROUT	EA 7363™ ANCHOR BOLT GROUT HP	▲												
FLOOR REPAIR & RESURFACING	PC 9416™ FLOOR FILL			▲		△					△			
FLOOR REPAIR & RESURFACING	PC 9410™ *(KNOWN AS MAGNA-CRETE™)*			▲			△	△				▲	▲	▲
FLOOR REPAIR & RESURFACING	PC 9620™ *(KNOWN AS MAGNA-GROUT™)*			▲			△	△				▲	▲	▲
FLOOR REPAIR & RESURFACING	PC 6231™ CRACK FILLER SL				▲									
CHOCKING COMPOUND	PC 7202™ MARINE CHOCKING COMPOUND		▲			▲	△			△				

△ Good Choice ▲ Preferred Choice

LOCTITE® Heavy Duty Cartridge Applicators

	LOCTITE® PRODUCT	IDH NUMBER	DESCRIPTION	USED TO DISPENSE	RECOMMENDED MIX NOZZLE
MANUAL CARTRIDGE DISPENSERS	MANUAL CARTRIDGE APPLICATOR 300 ML	1093940	Manual Cartridge Applicator 300 ml Single/Coaxial/ Dual Cartridges (8.6 fl. oz., 26:1 Thrust)	LOCTITE® EA 7363™ ANCHOR BOLT GROUT HP	IDH 1100962 (3 pk.)
MANUAL CARTRIDGE DISPENSERS				LOCTITE® PC 6231™ Crack Filler SL	IDH 1100963 (3 pk.)

Your Source for FLOOR FILL
LOCTITE® PC 9416™ FLOOR FILL 6-STEP PROCESS

Gasketing & Sealing

53	Gasketing & Sealing
55	Anaerobic Gasketing & Sealing
59	Elastomeric Gasketing & Sealing

WHY USE LOCTITE® GASKETING & SEALING PRODUCTS?

Gaskets are used to prevent leakage of fluids or gases by forming impervious barriers. For successful gasketing, it is necessary that the seal must remain intact and leak-free over a long period of time. The gasket must be resistant to fluids and/or gases, and withstand the operating temperatures and pressures to which it is subjected. LOCTITE® gasketing products are self-forming gaskets that provide a perfect seal between components, with maximum face-to-face contact, eliminating flange face corrosion. A low-pressure seal is formed immediately on assembly. At full cure it provides a seal that won't shrink, crack or relax.

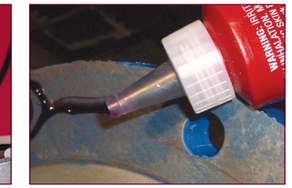
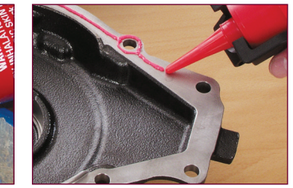
TRADITIONAL METHODS VS. LOCTITE® MODERN SOLUTION

The major causes of failure and leakage of compression gaskets are:

- Surface contact: Compression gaskets do not provide total contact between the gasket and the flange surfaces. Therefore, minor leakages may occur (weeping rate).
- Compression set: Compression gaskets relax under dynamic loads and decrease in thickness, with subsequent loss of bolt tension in the flange joint resulting in leakage.
- Extrusion: Gaskets can be squeezed out between flanges.
- Bolt hole distortion: High stresses are transferred to the gasket material under the bolt head, causing the gasket to crack, tear, rupture or extrude.

KEY BENEFITS OF LOCTITE® GASKETING & SEALING PRODUCTS VS. CONVENTIONAL PRECUT COMPRESSION GASKETS:

- Single-component – easy and clean to apply
- Replace conventional gaskets – reduce inventory
- Excellent instant seal
- Fill all voids
- No need for re-torquing
- High resistance to solvents
- Resist high pressure when fully cured

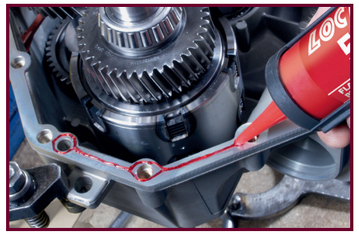



GENERAL COMPARISON & PROCESS CONSIDERATIONS	GASKET TYPE			
	CONVENTIONAL GASKET DRESSINGS	CURED-IN-PLACE SILICONES	FORMED-IN-PLACE ANAEROBICS	FORMED-IN-PLACE SILICONES
NUMBER OF COMPONENTS	1	1	1	1
BENEFITS	Versatile, immediate green strength (sticky)	High gap filling, reusable/ serviceable gasket, immediate fill properties	Improved structural strength, long open time, high pressure seal	High gap filling, resistant to dynamic fatigue, on-line pressure testing
LIMITATIONS	Non-curing, limited gap fill, % shrinkage	Requires process equipment	Limited gap fill	Short open time
TEMPERATURE RESISTANCE				
CONTINUOUS OPERATION	-65°F to 400°F (-54°C to 204°C)	-60°F to 400°F (-51°C to 204°C)	-40°F to 400°F (-40°C to 204°C)	-60°F to 400°F (-51°C to 204°C)
MAXIMUM	600°F (315°C)	500°F (260°C)	400°F (204°C)	725°F (385°C)
FLUID RESISTANCE				
OIL	Yes	Yes	Yes	Yes
WATER/GLYCOL	Yes	Yes	Yes	Yes
FUEL	Limited	No	Limited	No
TRANSMISSION FLUID	Yes	Yes	Yes	Yes
GAP FILL				
IDEAL	0.001 in. to 0.005 in.	0.020 in. to 0.125 in.	0.001 in. to 0.005 in.	0.001 in. to 0.125 in.
MAXIMUM	0.010 in.	0.240 in.	0.050 in.	0.240 in.
INSTANT SEAL	High Pressure	High Pressure	Low Pressure	Low Pressure
FLANGE TYPE	Rigid or Flexible	Rigid or Flexible	Rigid	Rigid or Flexible
SUITABLE FOR USE WITH:				
METALS	Yes	Yes	Yes	Yes
PLASTICS	Yes	Yes	No*	Yes
CURE				
CURE METHOD	N/A	UV/RTV	Anaerobic	RTV
CURE TEMPERATURE	Room Temperature	Room Temperature	Room Temperature	Room Temperature
INITIAL CURE SPEED	Immediate	15 to 30 seconds	15 to 30 minutes	15 to 30 minutes
FULL CURE SPEED	N/A	30 seconds	24 to 72 hours	1 to 7 days
PROCESSING OPTIONS				
MANUAL	Yes	No	Yes	Yes
AUTOMATED	No	Yes	Yes	Yes

* Uncured liquid adhesives may cause stress cracking of certain thermoplastics (e.g., polycarbons, acrylics and polysulfone).
Special products and process techniques are available. Consult the Loctite® Design Guide for Bonding Plastics (LT-2197) or call 1-800-562-8483 for more information.

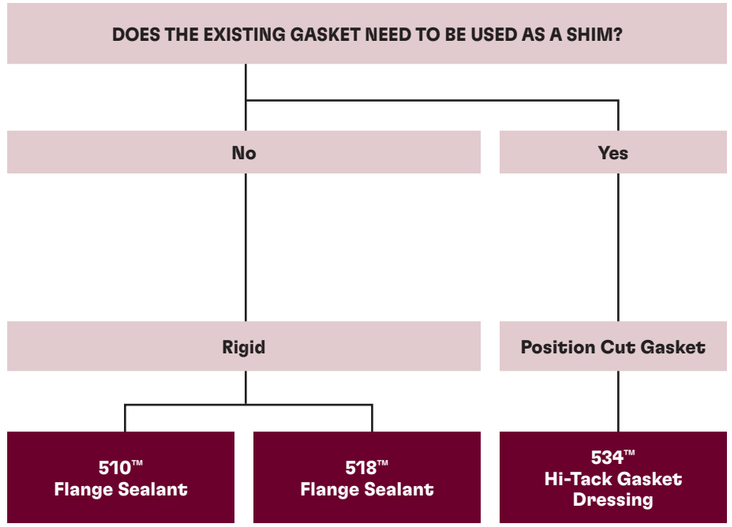
PLEASE NOTE: This chart should not be used to specify products without specific testing. It is recommended that you conduct on-part testing to ensure product performance before specifying any gasketing product.

Anaerobic Gasketing & Sealing



Your Application

- Revolutionized flange sealing in the automotive industry, the assembly of heavy equipment, and the manufacture of various types of fluid power equipment
- Remain a liquid when exposed to air, but cure when confined between mating flanges
- Best suited for small gap applications and rigid metal-to-metal assemblies



Solution

	510™ Flange Sealant	518™ Flange Sealant	534™ Hi-Tack Gasket Dressing
Gasket Type	Formed-in-Place	Formed-in-Place	Two-Part Acrylic
Gap Fill	0.010" (0.25 mm)	0.010" (0.25 mm)	N/A
Gap Fill with Primer	0.020" (0.50 mm)	0.050" (1.27 mm)	N/A
Cure Method	Anaerobic	Anaerobic	Anaerobic
Cure Time	4 to 24 hrs.	4 to 24 hrs.	N/A
Temperature Resistance (Continuous/Intermittent)	400°F (204°C)/ N/A	300°F (149°C)/ N/A	300°F (150°C)/ N/A
Oil Resistance	Excellent	Excellent	Excellent
Water/Glycol Resistance	Excellent	Excellent	N/A
Recommended Primer	SF 7088™, SF 7649™, SF 7471™	SF 7088™, SF 7649™, SF 7471™	Not Required

Product Description

LOCTITE® 510™ Flange Sealant

High Temperature

Product withstands temperatures to 400°F (204°C) and has excellent solvent and chemical resistance. Fills gaps up to 0.010 in. (0.254 mm) and maintains clamping loads for strong, leakproof assemblies. Makes or dresses gaskets in rigid assemblies. Eliminates gasket compression set.

IDH	Package Size
135474	50 ml tube
234225	250 ml tube
234240	300 ml cartridge

LOCTITE® 518™ Flange Sealant

Recommended for use on rigid iron, steel and aluminum flanges. Spray LOCTITE® SF 7649™ Primer on only one surface.
NSF/ANSI 61 Certified.
CFIA Listed.

IDH	Package Size
2096062	6 ml tube
2096064	50 ml tube
2096061	300 ml cartridge

LOCTITE® 534™ Hi-Tack Gasket Dressing

No mess, semisolid formula offers added control and ease of use. Patented package is portable and won't leak or spill. Seals and holds the heaviest gaskets in place during assembly. Solvent-free and low odor. Suitable to 300°F (150°C).

IDH	Package Size
640804	19 g stick

* See page 75 for additional properties.
** Uncarded tubes, sold as full cases of 100 pieces.
† Made-to-order item.

WHEN SHOULD A LOCTITE® PRIMER BE USED?

HELPFUL HINTS

LOCTITE® anaerobic adhesives cure (1) in the absence of air, and (2) in the presence of metal ions. When assembling inactive metal parts – which are low in metal ions – use of a LOCTITE® Primer is strongly recommended to ensure proper performance.

INACTIVE METALS (PRIMERS RECOMMENDED)		ACTIVE METALS (PRIMERS OPTIONAL)
PLATED PARTS	SILVER	IRON
ANODIZED ALUMINUM (ALODINE®, IRIDITE™)	GOLD	PLAIN STEEL
TITANIUM	ZINC	COPPER
STAINLESS STEEL	PURE ALUMINUM†	BRASS
GALVANIZED STEEL	CADMIUM	BRONZE
MAGNETITE STEEL	MAGNESIUM	MANGANESE
INCONEL™	NATURAL OR CHEMICAL BLACK OXIDE	MONEL™
NICKEL		KOVAR™

Primers also help speed up cure rates. Fixture time can be reduced from several hours to minutes, allowing faster assembly and production throughput.

LOCTITE® primers are also recommended when assembling metal parts that are cold, have large gaps or deep threads.

NOTE: Using a primer will decrease ultimate bond strength.

GASKETING & SEALING PREP STEPS

HELPFUL HINTS

- Clean parts with LOCTITE® SF 7070™ ODC-Free Cleaner & Degreaser.
- If the parts were in contact with aqueous washing solutions or cutting fluids, which leave a protective layer on the surface, wash with hot water before use.
- If applying below 40°F, pretreat parts with LOCTITE® SF 7649™ Primer.

† Pure aluminum is an inactive metal. Alloys of aluminum containing copper are considered active metals.

Anaerobic Gasketing & Sealing

LOCTITE® Rigid Assembly Gasketing Product Properties Chart

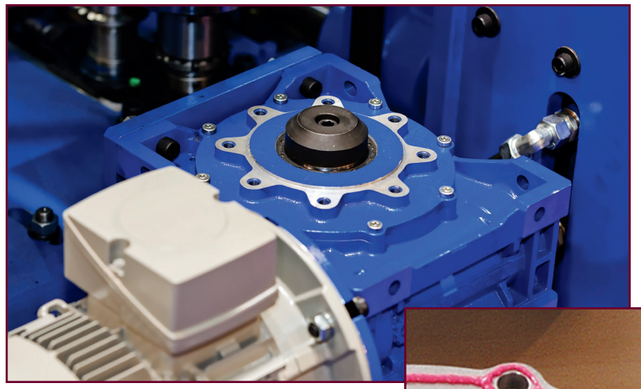
	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	COLOR	TYPICAL USE	MAX. GAP FILL - WITHOUT PRIMER (INCHES)	CURED STATE	VISCOSITY (cP)	TEMPERATURE RANGE	CURE SPEED	RECOMMENDED PRIMER	AGENCY APPROVALS
ANAEROBIC GASKETING PRODUCTS	509™	231153	300 ml cartridge	Blue	Requiring high flexibility	0.01	Highly Flexible	30,000 - 100,000 Thixotropic	-65°F to 300°F (-54°C to 149°C)	25% - 8 hours 100% - 72 hours	SF 7471™ or SF 7649™	N/A
	510™ HIGH TEMPERATURE	135474 234225 234240	50 ml tube 250 ml tube 300 ml cartridge	Red	Requiring higher temperature or chemical resistance	0.01	Rigid	40,000 - 140,000 Thixotropic	-65°F to 400°F (-54°C to 204°C)	25% - 2 hours, 100% - 72 hours	SF 7471™	N/A
	515™	209756 135479 88541	6 ml tube 50 ml tube 300 ml cartridge	Purple	General purpose	0.01	Semi-Flexible	150,000 - 375,000 Thixotropic	-65°F to 300°F (-54°C to 149°C)	25% - 1 hour, 100% - 24 hours	SF 7471™ or SF 7649™	UL Classified for U.S.
	518™	2096062 2096064 2096061	6 ml tube 50 ml tube 300 ml cartridge	Red	General purpose - Instant low pressure seal	0.02	Semi-Flexible	500,000 - 1,000,000 Thixotropic	-65°F to 300°F (-54°C to 149°C)	25% - 1 hour , 100% - 72 hours	SF 7471™ or SF 7649™	NSF/ANSI 61, CFIA Listed
	549™	1661866	250 ml tube	Orange	Requiring slow cure, high strength	0.02	Rigid	10,000 - 35,000	-65°F to 300°F (-54°C to 149°C)	25% - 5 hours, 100% - 72 hours	SF 7471™	N/A
	573™	232000	250 ml tube	Orange	Requiring slow cure, lower strength	0.01	Semi-Flexible	13,500 - 33,000 Thixotropic	-65°F to 300°F (-54°C to 149°C)	25% - 20 hours, 100% - 72 hours	SF 7649™	N/A
	574™	230649 223856	50 ml tube 250 ml tube	Green	General purpose	0.02	Rigid	23,000 - 35,000 Thixotropic	-65°F to 300°F (-54°C to 149°C)	25% - 30 mins, 100% - 24 hours	SF 7471™ or SF 7649™	N/A
	5188™	1253203 1241991	50 ml tube 300 ml cartridge	Red	Requiring high flexibility	0.005	Highly Flexible	11,000 - 32,000	-65°F to 300°F (-54°C to 149°C)	25% - 30 mins, 100% - 24 hours	SF 7649™	N/A
	2892™	544027	50 ml tube	Blue	Requiring higher temperature resistance	0.01	Semi-Flexible	450,000 - 950,000 Thixotropic	-65°F to 350°F (-54°C to 176°C)	N/A	SF 7471™ or SF 7649™	N/A

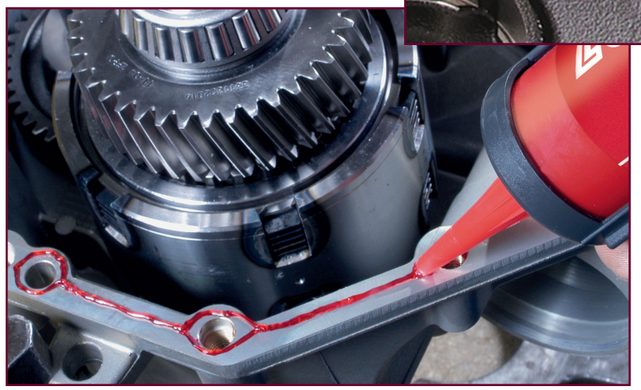
LOCTITE® Sealing / Dressing for Existing Gasket Properties Chart

		LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	COLOR	TYPICAL USE	CURED STATE	VISCOSITY (cP)	TEMPERATURE RANGE	CURE SPEED
SOLVENT BASED GASKETING PRODUCTS	NONCORROSIVE	534™ HI-TACK GASKET DRESSING	640804	19 g stick	Purple	Vertical, repositionable	N/A	N/A	-65°F to 300°F (-54°C to 149°C)	5 minutes to set
		MR GS1™ GASKET SEALANT	234887	7 fl. oz. tube	Red-Brown	Fast dry, rigid cure	Rigid	500,000 – 700,000	-65°F to 400°F (-54°C to 204°C)	2 hour set time, 24 hours full cure
		MR GS2™ GASKET SEALANT	198819	7 fl. oz. tube	Black	Slow drying, flexible cure	Flexible	500,000 – 700,000	-65°F to 400°F (-54°C to 204°C)	4 hours set time, 24 hours full cure
		NS 5109™ GASKET MAKER	226654	7 fl. oz. tube	Black	High temperature	Flexible	80,000 – 100,000	-50°F to 600°F (-45°C to 315°C)	4 hour set time
		MR 5009™ HI-TACK GASKET SEALANT	1540591 234910	1 pint brush-top can 9 oz. net wt. aerosol	Red	Tacky gasket dressing, repositionable	Flexible	235 – 305	-65°F to 500°F (-54°C to 260°C) [aerosol to 600°F/316°C]	5 minutes to set
		MR 5923™ GASKET DRESSING	1522029	1 pint brush can	Brown	Close tolerance flanges, slow drying, flexible cure	Flexible	8,000 – 10,000	-65°F to 400°F (-54°C to 204°C)	4 hours set time, 24 hours full cure
		5127™	229501	300 ml cartridge	Blue	For flexible applications, high elongation	Flexible	100,000 – 500,000 Thixotropic	-65°F to 300°F (-54°C to 149°C)	Unprimed – 4 to 24 hrs. Primed – 1 to 24 hrs.

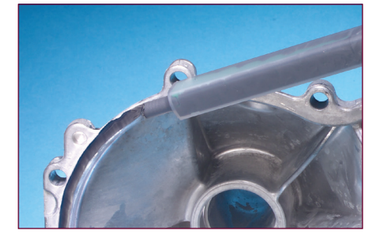
LOCTITE® Primer Properties Chart

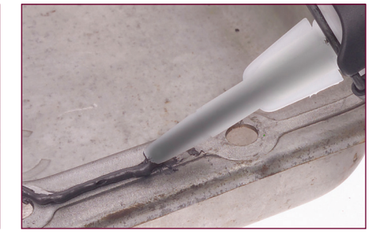
	LOCTITE® PRODUCT	IDH	PACKAGE TYPE & SIZE	COLOR	VISCOSITY (cP)	BASE	ON-PART LIFE	DRY TIME	APPLICATION	AGENCY APPROVALS
PRIMERS	SF 7088™ PRIMER	1069258	17 g stick	Teal	Semisolid	No solvent	30 days	None	Anaerobics	N/A
	SF 7090™ ACTIVATOR	135287 88068	1 fl. oz. bottle 1 liter bottle	Dark Blue	17.5	No solvent	1 hour	None	Anaerobics	N/A
	SF 7471™ PRIMER	135285 135337 229932	1.75 fl. oz. glass bottle 4.5 oz. net wt. aerosol can 1 gallon can	Amber	2	Acetone/ Isopropanol	7 days	30 to 70 seconds	Anaerobics	MIL-S-22473E for existing designs, ASTM D-5363 for new designs
	SF 7649™ PRIMER	135286 231020 209715 135284	1.75 fl. oz. glass bottle 25 g net wt. aerosol can 4.5 oz. net wt. aerosol can 1 gallon can	Clear/ Green	2	Acetone	30 days	30 to 70 seconds	Anaerobics	MIL-S-22473E for existing designs, ASTM D-5363 for new designs, NSF/ANSI 61, NSF P1, CFIA Listed





Elastomeric Gasketing & Sealing





Your Application

- Excellent fluid resistance
- Formulations for high operating temperatures available
- UV-curing formulations for cure-in-place production requirements
- Suited best for large-gap applications and stamped metal assemblies, where flange flexing occurs

ARE YOU GASKETING OR SEALING?

- Gasketing
  - Fast Cure
    - One-Part → SI 5900® Instant Gasket
    - Light Cure → SI 5050™
  - High Fluid Resistance
    - Rigid for High Torque → SI 5699™
    - Normal Hardness → AA 5810A™
  - General-Purpose
    - High Temperature Resistance → SI 596™ RD
  - Excellent Oil Resistance → SI 5970™
- Sealing
  - Fast Skinning
    - High Temperature Resistance → SI 5109™ RD
  - Noncorrosive → SI 5011™ CL

Solution

	SI 5900® Instant Gasket	SI 5050™	SI 5699™	AA 5810A™	SI 596™ RD	SI 5970™	SI 5109™ RD	SI 5011™ CL
Color	Black	Translucent	Grey	Black	Red	Black	Red	Clear
Viscosity	Paste	Paste	Paste	Paste	Paste	N/A	Paste	Paste
Temperature Range	-65°F to 500°F (-54°C to 260°C)	Up to 300°F (149°C)	-75°F to 625°F (-59°C to 329°C)	-40°F to 300°F (-40°C to 150°C)	-75°F to 600°F (-59°C to 316°C)	-40°F to 450°F (-40°C to 232°C)	Up to 600°F (316°C)	-75°F to 500°F (-59°C to 316°C)
Oil Resistance	Increased Oil Resistance	N/A	Increased Oil Resistance	Excellent Oil Resistance	N/A	Oil/Water Resistant	N/A	Oil Resistant
Agency Approvals	NSF P1	N/A	CFIA Listed	N/A	CFIA Listed	N/A	N/A	N/A

Product Description

LOCTITE® SI 5900® Instant Gasket

Makes high performance, leakproof gaskets in one minute. Equipment can be returned to service immediately. Blowout resistant. Outperforms precut gaskets.

IDH	Package Size
270637	5 fl. oz. cartridge
743913	190 ml aerosol can
743912	90 ml aerosol can

LOCTITE® SI 5050™ Silicone Adhesive Sealant

A UV light curing silicone for high speed adhesion, gasketing and sealing applications. High adhesion for difficult-to-bond substrates.

IDH	Package Size
1212165	40 lb. pail

LOCTITE® SI 5699™ Grey, High Performance RTV Silicone Gasket Maker

For rigid flange assemblies. Excellent fluid resistance. Easy to dispense, noncorrosive, low odor, low volatility. Grey in color.

IDH	Package Size
756302	190 ml aerosol can

LOCTITE® AA 5810A™ Sealant

Single-component, non-silicone polyacrylate-based adhesive/sealant. Excellent oil resistance.

IDH	Package Size
648435	300 ml cartridge

LOCTITE® SI 596™ RD Silicone Adhesive Sealant

Makes gaskets that resist temperatures to 600°F (316°C) intermittent. Resists aging, weather and thermal cycling without shrinking, cracking or hardening. Fills gaps to 0.25 in.

IDH	Package Size
2700556	190 ml aerosol can

LOCTITE® SI 5970™ Flange Sealant

A non-oxime gasket maker. Resistant to liquid coolants, oils and most automotive fluids.

IDH	Package Size
660095	300 ml cartridge

LOCTITE® SI 5109™ RD Tile Bond Red High Temp RTV Silicone Adhesive Sealant

High initial tack strength silicone that resists temperatures to 600°F (316°C) intermittent.

IDH	Package Size
226654	7 oz. tube
229904	300 ml cartridge
1162399	4.5 gallon pail

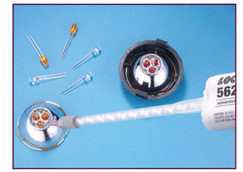
LOCTITE® SI 5011™ CL Noncorrosive RTV Silicone Adhesive Sealant

Neutral curing and noncorrosive for aluminum, concrete and electrical applications.

IDH	Package Size
234323	80 ml tube
234325	300 ml cartridge

* Made-to-order item.

Elastomeric Gasketing & Sealing



LOCTITE® Gasketing Properties Charts

		LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	COLOR	CONSISTENCY	OIL RESISTANCE	TEMPERATURE RANGE (INTERMITTENT)	SEALING TIME	AGENCY APPROVALS
SEALING / FORMED-IN-PLACE	NONCORROSIVE	SI 598™ BLACK	234609 135509 743518	70 ml tube 49 lb. pail 190 ml can	Black	Paste	Excellent oil resistance	-75°F to 625°F (-59°C to 329°C)	Tack-Free – 30 min. Full Strength – 24 hrs.	CFIA Listed
		SI 587™ BLUE	135504 234590 234592	70 ml tube 300 ml cartridge 50 lb. pail	Blue	Paste	Increased oil resistance	-75°F to 500°F (-59°C to 260°C)	Tack-Free – 30 min. Full Strength – 24 hrs.	NSF P1, CFIA Listed, ABS
		SI 5699™ GREY	756302	190 ml can	Grey	Paste	Increased oil resistance	-75°F to 625°F (-59°C to 329°C)	Tack-Free – 30 min. Full Strength – 24 hrs.	CFIA Listed
		SI 5920™ COPPER	198818 235479	70 ml tube 300 ml cartridge	Copper	Paste	Increased oil resistance	-65°F to 700°F (-54°C to 371°C)	Tack-Free – 60 min. Full Strength – 24 hrs.	CFIA Listed

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	COLOR	TYPICAL USE	GAP FILL (INCHES)	EXTRUSION RATE (g/min.)	TEMP. RANGE	CURE METHOD	CURE SPEED*	SPECIFIC GRAVITY	SHORE HARDNESS	% ELONGATION	TENSILE STRENGTH (psi†)	AGENCY APPROVALS
FORMED-IN-PLACE	SI 5900®	270637 743913 743912	5 fl. oz. cartridge 190 ml can 90 ml can	Black	High adhesion, instant seal	0.390	20 to 50	-65°F to 500°F (-54°C to 260°C)	Moisture	Tack-Free - 20 min. Full Cure - 24 hrs. to 7 days	1.3 to 1.37	A 31 to 36	>400	>246	NSF P1
	SI 5905™	450568	50 lb. pail	Black	High adhesion, fast cure depth	0.240	350	-65°F to 500°F (-54°C to 260°C)	Moisture	Tack-Free - 20 min. Full Cure - 24 hrs.	1.30	A 39	345	270	CFIA Listed
	SI 5910®	231232 231234 231236	300 ml cartridge 50 lb. pail 550 lb. drum	Black	High adhesion	0.240	600	-65°F to 500°F (-54°C to 260°C)	Moisture	Tack-Free - 20 min. Full Cure - 24 hrs.	1.34	A 30	550	200	CFIA Listed
	SI 5970™	660095	300 ml cartridge	Black	Oil/water resistance	0.240	60	-40°F to 450°F (-40°C to 232°C)	Moisture	Tack-Free - 25 min. Full Cure - 24 hrs.	1.41	A 44	>200	278	N/A
	SI 5045™	735891	300 ml cartridge	Clear	Military, high tensile	0.250 in.	40	-65°F to 400°F (-54°C to 204°C)	Moisture	Tack-Free - 1.5 hrs. Full Cure - 24 hrs.	1.14	A 25	>500	>493	MIL-A-46146B

* Varies with substrates. ** Uncarded tubes, sold as full cases of 100 pieces. † Grit-blasted steel.

LOCTITE® Gasketing Properties Chart

		LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	COLOR	CONSISTENCY	OIL RESISTANCE	TEMPERATURE RANGE (INTERMITTENT)	SEALING TIME	AGENCY APPROVALS
POLYACRYLATE		AA 5810A™	648435	300 ml cartridge	Black	Paste	Excellent oil resistance	-40°F to 300°F (-40°C to 150°C)	Tack-Free – 190 min.	N/A
SUPERFLEX® RTV SILICONES		SI 5015™ BLUE	270642 270639	80 ml tube 300 ml cartridge	Blue Blue Blue	Paste	N/A	-65°F to 500°F (-54°C to 260°C)	Tack-Free – 30 min. Full Strength – 24 hrs.	N/A
		SI 5019™ BLUE	2634174	190 ml can	Blue					
		SI GREEN RTV SILICONE	1165866	190 ml can	Equipment Green					
		SI 596™ RD	2700556	190 ml aerosol can	Red	Paste	N/A	-75°F to 600°F (-59°C to 316°C)	Tack-Free – 30 min. Full Strength – 24 hrs.	CFIA Listed
	NONCORROSIVE	SI 5011™ CLEAR	234323 234325	80 ml tube 300 ml cartridge	Clear	Paste	Oil resistant	-75°F to 500°F (-59°C to 260°C)	Tack-Free – 25 min. Full Strength – 24 hrs.	N/A
HIGH TEMPERATURE	SILICONE	SI 5109™ RD	226654 229904 1162399	7 oz. tube 300 ml cartridge 4.5 gallon pail	Red	Paste	N/A	Up to 600°F (316°C)	Tack-Free – 30 min. Full Strength – 24 hrs.	N/A

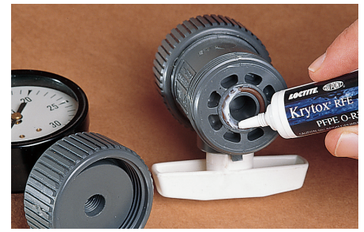
LOCTITE® Elastomeric Gasketing Attributes & Applications Chart

	LOCTITE® PRODUCT	MAIN ATTRIBUTES	APPLICATIONS
GASKETING SILICONES	INSTANT GASKET	Instant seal and blowout resistance, replaces most cut gaskets, low odor, sensor-safe	Timing gear and valve covers, water pumps, gearboxes, transmission pans
	SI 598™ BLACK	Forms a tough, flexible silicone rubber gasket	Oil pans, valve covers, timing gear covers, differential covers
	SI 587™ BLUE	Plant maintenance and small-to-large-sized OEMs	Typical automotive gasketing applications
	SI 5699™ GREY	Excellent oil resistance	Rigid flange sealing of transmissions and cast metal housings
	SI 5920™ COPPER	Fills voids in surfaces for a positive seal	Adheres to most surfaces
	SI 5905™ BLACK	Fast cure, excellent fluid resistance	Large gap applications, flange flexing
	SI 5015™ BLUE	Forms a tough, flexible silicone rubber gasket, oxygen sensor-safe	Typical automotive gasketing applications
	SI 596™ RD	Plant maintenance and small-to-large-sized OEMs low silicone volatiles	Automotive gasketing, industrial furnaces, boilers, ducting
	SI 5011™ CLEAR	Resists steam, chemical and UV ozone exposure	Adheres to most surfaces

LOCTITE® Cured-in-Place Silicone Gasketing Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	COLOR	CONSISTENCY	EXTRUSION RATE (g/min.)	CURE METHOD	CURE SPEED*	SHORE HARDNESS	% ELONGATION	TENSILE STRENGTH (psi†)	AGENCY APPROVALS
CURED-IN-PLACE	SI 5039™	742348	300 ml cartridge	Translucent/ Colorless/ Fluorescent	Paste	222	UV or Visible/ Moisture	30 sec. @ 120 mW/cm²	A 40	210	290	N/A
	SI 5050™	1212165	40 lb. pail	Translucent	Paste	500	Ultraviolet	Ultraviolet	A 45	260	421	N/A
	SI 5950™	29287 18495	300 ml cartridge 40 lb. pail	Black	Paste	350	UV/Moisture	30 sec. @ 120 mW/cm²	A 27	200	150	N/A

* Varies with substrates. † Grit-blasted steel.



63	Lubricating
65	Anti-Seize
69	Lubricants

WHY USE A LOCTITE® LUBRICANT?

LOCTITE® Lubricants offer protection for industrial plants and equipment. This range includes organic, mineral and synthetic-based products meeting the requirements of industrial applications.

WHAT IS THE FUNCTION OF A LUBRICANT?

The typical function of a lubricant is to protect against friction and wear. Lubricants are also used to protect against corrosion by displacing moisture and leaving a continuous coating on the part.

WHAT CONSIDERATIONS ARE IMPORTANT WHEN CHOOSING A LUBRICANT?

When choosing a lubricant, it is important to consider the intended application as well as the environmental conditions to which the assembly will be exposed. Environmental conditions are critical to the successful selection of the right lubricant product. Factors including high temperature, harsh chemicals and contaminants may have an adverse effect on the expected lubricant performance.

KEY BENEFITS OF USING A LOCTITE® LUBRICANT:

- Improved high temperature performance
- Higher lubricity
- Provides lubrication in extreme environments
- Superior water-washout properties
- Higher purity
- Protects against rust, corrosion, seizing and galling

ANTI-SEIZE

LOCTITE® anti-seize products provide protection against rust, corrosion, seizing and galling, as well as lubrication. Anti-seizes are typically the products of choice for high temperature applications because of their unique ability to provide protection in extreme temperature conditions. Each product contains a combination of solid lubricating agents resulting in different high temperature limits and lubricities. These are the two major factors in choosing the right anti-seize product for your application.

METAL-FREE

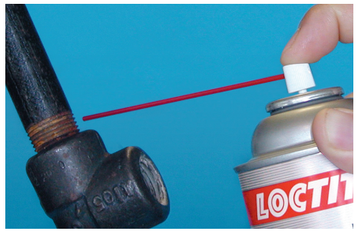
The "Metal-Free" products utilize nonmetallic fillers to achieve high temperature resistance properties as well as lubricity. These fillers typically provide a much higher temperature resistance than that of metallic fillers and, due to the less abrasive nature of these fillers, they also typically provide lower K-values, resulting in higher lubricity.

APPLICATIONS:

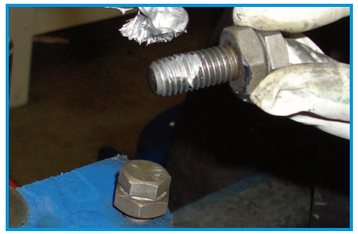
- Pump
- Gearbox
- Hoists
- Conveyor Systems
- Overhead Doors
- Way Lube
- Seals

INDUSTRIES:

- Mining
- Wastewater
- Power Generation
- Food Processing
- Pulp and Paper
- Beverage



Anti-Seize



Your Application

WHAT TYPE OF ANTI-SEIZE DO YOU REQUIRE?

HELPFUL HINT

- Look for this icon for Metal-Free Loctite® Anti-Seize Products.

NO METAL

Solution

General-Purpose			Stainless Steel and Titanium Applications	Soft Metal Applications	Incidental Food Contact	Water-Resistant
Up to 1600°F (871°C)	Up to 1800°F (982°C)	Up to 2400°F (1315°C)				
Available in a Paste or Semisolid Stick	Available in a Paste or Semisolid Stick		Available in a Paste or Semisolid Stick			
LB 8150™ LB 8151™ LB 8060™	LB 8007™ LB 8008™ LB 8065™	LB 771™ LB 8507™	NO METAL LB 8009™ LB 8070™	LB 8044™	NO METAL LB 8014™	NO METAL LB 8023™

	General-Purpose			Stainless Steel and Titanium Applications	Soft Metal Applications	Incidental Food Contact	Water-Resistant
Color	Silver	Copper	Silver	Grey	Grey	White	Black
Solid Lubricating Agent	Graphite/Aluminum	Copper/Graphite	Nickel/Graphite	Graphite/Calcium Fluoride	Zinc	White Lubricating Solids	Calcium Sulfonate
Torque Coefficient*	0.18	0.16	0.13	0.16	0.15	0.13	0.18
Temperature Range	-20°F to 1600°F (-29°C to 871°C)	-20°F to 1800°F (-29°C to 982°C)	-20°F to 2400°F (-29°C to 1315°C)	-20°F to 2400°F (-29°C to 1315°C)	-20°F to 750°F (-29°C to 399°C)	-20°F to 750°F (-29°C to 399°C)	-20°F to 2400°F (-29°C to 1315°C)
Metal-Free	No	No	No	Yes	No	Yes	Yes

Product Description

LOCTITE® LB 8150™, LB 8151™, LB 8060™ Anti-Seize

Heavy-duty, temperature resistant, petroleum-based lubricant compound fortified with graphite and metallic flake. Inert and will not evaporate or harden in extreme cold or heat. For use in assemblies up to 1600°F (871°C).
CFIA Listed.

IDH	Package Size
531668	7 g pouch
1999141	7 fl. oz. brush-top tube
235092	4 oz. brush-top can
199012	8 oz. brush-top can
235005	1 lb. brush-top can
235086	1 gallon can
235009	5 gallon pail

IDH	Package Size
LOCTITE® LB 8151™	
135541	12 oz. net wt. aerosol
LOCTITE® LB 8060™	
466864	20 g stick

LOCTITE® LB 8007™, LB 8008™, LB 8065™ C5-A® Copper-Based Anti-Seize

Exclusive formula suspends copper and graphite in a high quality grease. Protects metal parts from rust, corrosion, galling and seizing at temperatures to 1800°F (982°C). **CFIA Listed Stick.**

IDH	Package Size
234302	2 g pouch
234292	7 g pouch
234192	1 oz. tube
234194	4 oz. tube
234259	4 oz. brush-top can
234263	8 oz. brush-top can
234200	10 oz. brush-top can
234202	1 lb. can
233317	1 lb. brush-top metal can
234204	2.5 lb. can
1615524	2.5 lb pail
234207	8 lb. can
566703	25 lb. pail
234209	42 lb. pail

IDH	Package Size
LOCTITE® LB 8007™	
1786073	12 oz. net wt. aerosol
LOCTITE® LB 8065™	
466863	20 g stick

LOCTITE® LB 771™, LB 8507™ Nickel Anti-Seize

Copper-free. Recommended for stainless steel and other metal fittings. For preventing corrosion, seizing and galling in harsh chemical environments and temperatures to 2400°F (1315°C).

IDH	Package Size
235028	8 oz. brush-top can
1852753	12 oz. net wt. aerosol
234248	1 lb. can
135543	1 lb. brush-top can
234269	8 lb. can
209768	5 gallon pail

LOCTITE® LB 8009™ and LB 8070™ Heavy Duty Anti-Seize

Metal-Free

Excellent lubricity. Provides outstanding lubrication to all metals including stainless steel, aluminum and soft metals up to 2400°F (1315°C).
CFIA Listed.

IDH	Package Size
234353	1 oz. tube
234347	9 oz. brush-top can
209758	18 oz. brush-top can
234349	2.3 lb. can
234351	45 lb. pail
1999560	7 fl. oz. brush-top tube

IDH	Package Size
LOCTITE® LB 8070™	
864067	20 g

LOCTITE® LB 8044™ Zinc Anti-Seize

Protects aluminum and ferrous surfaces from seizure and corrosion up to 750°F (399°C).

IDH	Package Size
233507	1 lb. can

LOCTITE® LB 8014™ Food Grade Anti-Seize

Metal-Free

Prevents seizure, galling and friction in stainless steel and other metal parts up to 750°F (399°C).
NSF H1 rated for incidental food contact. CFIA Listed.

IDH	Package Size
1167237	8 oz. brush-top can
1169241	2 lb. can

LOCTITE® LB 8023™ Marine Grade Anti-Seize

Formulated to protect assemblies exposed directly or indirectly to fresh water and salt water, this
anti-seize works especially well in high humidity conditions. It has excellent lubricity, superior water wash-out spray resistance and prevents galvanic corrosion.
ABS Approved.

IDH	Package Size
299175	8 oz. brush-top can
275026	16 oz. brush-top can

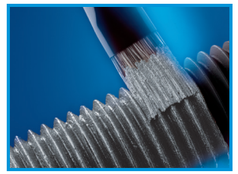
ANTI-SEIZE IS OFTEN...

HELPFUL HINTS

- Used as a gasket release agent in instances where reuse of the gasket is desirable
- Recommended for use on spark plug threads and electrical connections

* K value on steel nuts and bolts.

Anti-Seize



LOCTITE® Anti-Seize Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	TEMPERATURE RESISTANCE	COLOR	K VALUE*
GENERAL-PURPOSE	LB 8007™	1786073	12 oz. net wt. aerosol	1800°F (982°C)	Copper	
	LB 8008™	234302 234292 234192 234194 234259 234263 234200 234202 233317 234204 1615524 234207 566703 234209	2 g pouch 7 g pouch 1 oz. tube 4 oz. tube 4 oz. brush-top can 8 oz. brush-top can 10 oz. brush-top can 1 lb. can 1 lb. brush-top metal can 2.5 lb. can 2.5 lb. pail 8 lb. can 25 lb. pail 42 lb. pail	1800°F (982°C)	Copper	0.16
	LB 8065™	466863	20 g stick			
	LB 8150™	531668 1999141 235092 199012 235005 235086 235009	7 g pouch 7 fl. oz. brush-top tube 4 oz. brush-top can 8 oz. brush-top can 1 lb. brush-top can 1 gallon can 5 gallon pail	1600°F (871°C)	Silver	0.18
	LB 8151™	135541	12 oz. net wt. aerosol			
	LB 8060™	466864	20 g stick			
	LB 771™	235028 234248 135543 234269 209768	8 oz. brush-top can 1 lb. can 1 lb. brush-top can 8 lb. can 5 gallon pail	2400°F (1315°C)	Silver	0.13
	LB 8507™	1852753	12 oz. net wt. aerosol			
HIGH PERFORMANCE	LB 8009™	234353 234347 209758 1999560 234349 234351	1 oz. tube 9 oz. brush-top can 18 oz. brush-top can 7 fl. oz. brush-top tube 2.3 lb. can 45 lb. pail	2400°F (1315°C)	Grey	0.16
	LB 8070™	864067	20 g stick			
	LB 8023™	299175 275026	8 oz. brush-top can 16 oz. brush-top can	2400°F (1315°C)	Black	0.18
	LB 8036™	302677 302678	8 oz. brush-top can 16 oz. brush-top can	2000°F (1093°C)	White	0.16
SPECIALTY	LB 8014™	1167237 1169241	8 oz. brush-top can 2 lb. can	750°F (400°C)	White	0.13
	LB 8504™	234244	1 lb. can	900°F (482°C)	Black	0.13
	LB 8012™	1852755 234227 226696 226801	12 oz. net wt. aerosol 8 oz. brush-top can 1 lb. brush-top can 15 lb. can	750°F (400°C)	Black	0.11
	LB 8700™	234246 1114937	1 lb. can 8 lb. can	750°F (400°C)	Black	0.13
	LB 8044™	233507	1 lb. can	750°F (400°C)	Grey	0.15
HIGH PURITY	LB 8013™	234288 234286 234290	8 oz. brush-top can 1 lb. brush-top can 2 lb. can	2400°F (1315°C)	Silver	0.16
	LB N-5000™	234313 234280 234284 234282	1 oz. tube 8 oz. brush-top can 1 lb. brush-top can 2 lb. can	2400°F (1315°C)	Silver	0.15
	HIGH PERFORMANCE LB N-5000	234341	1 lb. brush-top can	2400°F (1315°C)	Silver	0.15
	LB N-1000™	234251 234253	8 oz. brush-top can 1 lb. can	1800°F (982°C)	Copper	0.17

* See K Value on next page.

LOCTITE® SF 7617™ INDUSTRIAL HAND WIPES

Clean hands anywhere! Quick and easy to use – no rinsing, drying or residue. Each 9 ½ in. x 12 in. towel is premoistened with powerful citrus-scented cleaning formula. Towels are abrasive enough to scrub off the toughest grease and grime.

IDH # 337637 75 count
337638 130 count

ADDITIONAL RESOURCES

LOCTITE® Anti-Seize Applications Chart

	LOCTITE® PRODUCT	MAXIMUM ANTI-SEIZE PROPERTIES	FOR MAXIMUM LUBRICITY	FOR LOW SPEEDS, HIGH LOADS	EXTREME HIGH TEMPERATURE RESISTANCE (TO 2000°F-2400°F)	EXTREME CHEMICAL RESISTANCE	ELECTRICALLY CONDUCTIVE	FOR ALUMINUM/ SOFT METALS	FOR STAINLESS STEEL	METAL-FREE FORMULATION	COPPER-FREE FORMULATION	KEY SPECIFICATIONS & AGENCY APPROVALS
GENERAL-PURPOSE	LB 8007™											N/A
	LB 8008™	△					△	△	△			CFIA Listed (stick)
	LB 8150™	△					△	△	△			CFIA Listed
	LB 771™	△			▲	▲	△		△		▲	N/A
HIGH PERFORMANCE	LB 8009™	▲			▲	△	△	△	▲	▲	▲	N/A
	LB 8023™	▲			▲			△	▲	▲	▲	ABS
	LB 8036™	△			▲			△	△	▲	▲	N/A
SPECIALTY	LB 8014™	■						△	▲	▲	▲	NSF H1, CFIA Listed
	LB 8504™	■				△	▲	△		▲	▲	N/A
	LB 8012™	■	▲	▲					▲	▲	▲	N/A
	LB 8700™	■	△	△					▲	▲	▲	N/A
	LB 8044™	■					■	▲	△			N/A
HIGH PURITY	LB 8013™	▲			▲	△	△		△	▲	▲	N/A
	LB N-5000™	△			▲	▲	△		△		▲	N/A
	HIGH PERFORMANCE LB N-5000™	▲	▲		▲	▲	△		△		▲	N/A
	LB N-1000™	△					△		△			N/A

△ Good Choice ▲ Preferred Choice ■ Acceptable Choice

TORQUE GUIDE

Proper clamp load is an essential part of any bolted assembly for trouble-free operations. Torquing either nut or bolt creates the clamp load. An anti-seize lubricant used on a bolt helps to develop greater clamp load for the same torque compared to an non-lubricated bolt. An additional benefit is greater uniformity in clamp load among a series of bolts. The relationship between torque and clamp load is expressed in the following equation: T = KFD.

Where:
T = Torque (in.-lb., ft.-lb., N-m)
F = Clamp Load (lb., N)
D = Nominal diameter of bolt (in., ft., m)
K = Torque coefficient or nut factor, determined experimentally

K Factors: K factors are obtained on Grade 8, ½ in. steel bolts and grade 5 nuts by a test procedure that measures torque tension properties. Lubricant was applied to the bolt threads and both faces of the washer.

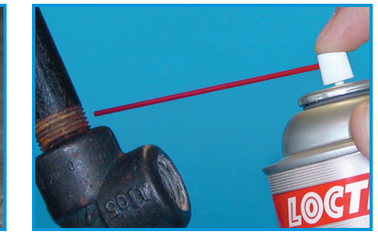
See the Properties Chart for the torque coefficient or K value for the anti-seize compounds.

Henkel Corporation believes that this data fairly represents performance to be expected. However, Henkel makes no warranty of specific performance on any individual fastener. In critical applications, it is necessary to determine K values independently.

PLEASE NOTE: There are two "coefficients" used to express the relationship between torque and tension: torque coefficient (also called "nut factor") is the most commonly used. A different concept is the "friction coefficient," which has a value of 2/3 (or 67%) of the torque coefficient.

ADDITIONAL RESOURCES

Lubricants



Your Application

- Temperature resistant
- Thermal stability
- Penetrate and free corroded assemblies

HIGH PERFORMANCE LUBRICATION

- Dry Film Lubricant
- Fast-Acting Corrosion Release
- Grease
  - Is there direct contact with severe chemicals? (i.e., chlorine, oxygen)
    - Yes
    - No

Solution

	LB 8017™	LB 8713™	LB 8213™ Krytox® RFE High Performance Lubricant	LB 8029™ Krytox® RFE Lubricant	LB 8034™ High Performance Synthetic Grease	LB 8632™
Base Oil	Molybdenum Disulfide	N/A	PFPE†	PFPE†	PAO†	PAO†
Viscosity	N/A	N/A	240 CST[1]	240 CST[1]	240 CST[1]	N/A
Temperature Range	-20°F to 750°F (-29°C to 399°C)	Up to 250°F (121°C)	-15°F to 500°F (-26°C to 260°C)	-15°F to 500°F (-26°C to 260°C)	-40°F to 500°F‡ (-40°C to 260°C)	-40°F to 420°F (-40°C to 216°C)
Four Ball Wear Test (mm) (ASTM D-2266)	N/A	N/A	0.30	0.30	0.42	0.60
Food Grade	N/A	N/A	N/A	N/A	NSF H1	NSF H1

Product Description

LOCTITE® LB 8017™ Moly Dry Film Lubricant

Solid film lubricant for sliding surfaces and slow-moving parts. Temperature resistant up to 750°F (399°C) as a dry film lubricant, 2400°F (1315°C) as an anti-seize. Won't squeeze out, burn off, or pick up dirt.

IDH	Package Size
1786074	12 oz. net wt. aerosol
233501	1.3 lb. can
233503	10 lb. can

LOCTITE® LB 8713™ Super Penetrating Oil

A clear, liquid petroleum distillate penetrating aerosol oil that flows between rusted and corroded parts to break the bond of oxidized metal.

IDH	Package Size
1865406	12.25 oz. net wt. aerosol

LOCTITE® LB 8213™ Krytox® RFE High Performance Lubricant

High performance synthetic grease provides long-lasting lubrication for all types of moving and/or sliding parts. Compatible with all plastics, elastomers and metals. Nonflammable, chemically resistant and oxygen compatible.

IDH	Package Size
234340	2 oz. tube
234337	16 oz. cartridge

LOCTITE® LB 8029™ Krytox® RFE Lubricant

Synthetic grease formulated specifically for severe environments. Great for lubricating O-rings. Excellent lubrication properties over a broad temperature range and in chlorine processing. **NLGI Grade 2 grease.**

IDH	Package Size
234339	2 oz. tube
31361	16 oz. cartridge

LOCTITE® LB 8034™ High Performance Synthetic Grease

NLGI Grade 2/ Severe Duty GC-LB Grease provides protection against equipment exposed to a wide range of temperatures. Use as a lubricant and protective anti-rust film on bearings and machine parts, or as a release agent on gaskets and seals. **NSF H1 rated for incidental food contact. CFIA Listed.**

IDH	Package Size
457456	3 oz. tube
457458	400 g can

LOCTITE® LB 8632™ Clear High Performance Synthetic Grease

Lasts four times longer than petroleum-based lubricants. Withstands temperatures up to 420°F (520°F intermittent). Contains PTFE for added protection against friction and wear. Nonflammable. Contains no ODCs. Clear in color. **NLGI Grade 2 grease. NSF H1 rated for incidental food contact. CFIA Listed.**

IDH	Package Size
675961	3 oz. tube
675962	400 g cartridge

† PTFE = PolyTetraFluoroEthylene, PFPE = PerFluoroPolyEther, PAO = PolyAlphaOlefin.
* 400°F (204°C) – Continuous, 500°F (260°C) – Intermittent.
‡ 420°F (216°C) – Continuous, 520°F (271°C) – Intermittent.
[1] CST at 104°F (40°C).

Lubricants

LOCTITE® Synthetic Lubricant Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	TEMPERATURE RESISTANCE	TYPE OF LUBRICANT	VISCOSITY RANGE	POUR POINT (ASTM D 97)	FOUR BALL TEST	NLGI RATING	DROP POINT	SPRAY TEST (ASTM B111)	AGENCY APPROVALS
SYNTHETIC / HIGH PERFORMANCE	LOCTITE® LB 8034™ HIGH PERFORMANCE SYNTHETIC GREASE	457456 457458	3 oz. tube 400 g can	400°F (204°C) continuous 500°F (260°C) intermittent	Synthetic hydrocarbon (polyalphaolefin-based)	240 CST	N/A	0.45 mm (ASTM D 2266)	2	500°F (260°C) (ASTM D 556)	Pass	NSF H1, CFIA Listed
SYNTHETIC / HIGH PERFORMANCE	LOCTITE® LB 8632™ CLEAR HIGH PERFORMANCE SYNTHETIC GREASE	675961 675962	3 oz. tube 400 g cartridge	-40°F to 420°F (-40°C to 216°C)	PAO (Polyalphaolefin)	N/A	N/A	0-60 mm (ASTM D 2266)	2	<590°F (<310°C) (ASTM D 2265)	N/A	NSF H1, CFIA Listed
SPECIALTY	LOCTITE® LB 8040™	2343777	320 g aerosol can	250°F (121°C)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
SPECIALTY	LOCTITE® SUPER LUBE	209806 230139 209807	3 oz. tube 11 oz. aerosol can 14.5 oz. cartridge	-45°F to 450°F (-42°C to 232°C)	PAO (Polyalphaolefin) & Mineral Oil							

Grease Compatibility Chart

THICKENER TYPE	CALCIUM SULFONATE VIPERLUBE®	SILICA GEL VIPERLUBE® CLEAR	LITHIUM SOAP	LITHIUM COMPLEX	ALUMINUM COMPLEX	CALCIUM COMPLEX	BARIUM SOAP	SODIUM SOAP	BENTONE	POLYUREA
CALCIUM SULFONATE VIPERLUBE®		SC	FC	FC	NC	FC	SC	NC	NC	NC
SILICA GEL VIPERLUBE® CLEAR	SC		FC	FC	FC	NC	FC	NC	FC	NA
LITHIUM SOAP	FC	FC		FC	NC	FC	SC	NC	NC	SC
LITHIUM COMPLEX	FC	FC	FC		NC	FC	SC	NC	NC	SC
ALUMINUM COMPLEX	NC	FC	NC	NC		NC	NC	SC	NC	NC
CALCIUM COMPLEX	FC	NC	FC	FC	NC		SC	NC	NC	SC
BARIUM SOAP	SC	FC	SC	SC	NC	SC		NC	NC	NA
SODIUM SOAP	NC	NC	NC	NC	SC	NC	NC		NC	NC
BENTONE	NC	FC	NC	NC	NC	NC	NC	NC		NC
POLYUREA	NC	NA	SC	SC	NC	SC	NA	NC	NC	

FC = Fully Compatible
NC = Not Compatible (Mixtures soften severely and do not remain grease-like.)
SC = Somewhat Compatible (Mixtures soften but remain grease-like.)
NA = Not Available

Krytox® RFE Lubricant Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	TEMPERATURE RESISTANCE	NON-FLAMMABLE	HIGH LOAD CAPACITY	CORROSION INHIBITORS	COMPATIBLE WITH ALL PLASTICS, METALS & ELASTOMERS	CHEMICALLY RESISTANT	OXYGEN COMPATIBLE*	THERMALLY STABLE	WATER/ STREAM RESISTANT	NLGI GRADE
SPECIALTY OILS AND LUBRICANTS	LOCTITE® LB 8209™ KRYTOX® RFE PFPE LUBRICANT (O-RING)	234339	2 oz. tube	-15°F to 500°F (-26°C to 260°C)	▪	▪		▪	▪	▪	▪	▪	2
SPECIALTY OILS AND LUBRICANTS	LOCTITE® LB 8213™ KRYTOX® RFE HIGH PERFORMANCE LUBRICANT	234340 234337	2 oz. tube 16 oz. cartridge	-15°F to 500°F (-26°C to 260°C)		▪	▪	All plastics and metals	▪	▪	▪	▪	2

* Per BAM 8104-411 & MSFC 106B under specific conditions. Test the proposed application thoroughly before use.

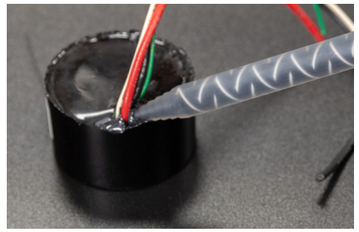
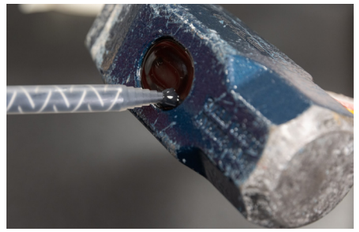
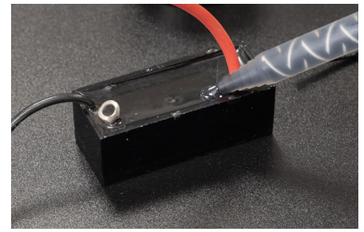
HELPFUL HINTS

- Dry film lubricants are an ideal choice for "unclean" environments where there is potential for dirt and other contaminants to come in contact with the product. Contaminants will not stick like they would with a standard grease.

LOCTITE® Lubricant Applications Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE/SIZE	TEMPERATURE RESISTANCE	FOOD PROCESSING EQUIPMENT	CLOSE-FITTING PARTS	HIGH TEMP	DIELECTRIC COMPOUND	ELECTRICAL EQUIPMENT	GEAR, BEARINGS, CABLE & CONVEYORS	HYDRAULIC UNITS (NOT BRAKES)	FOR HIGH SPEED BEARINGS	FOR LOW SPEEDS & HIGH LOADS	CHAIN-DRIVEN EQUIPMENT	SOLID FILM
SYNTHETIC / HIGH PERFORMANCE	LB 8632™ CLEAR HIGH PERFORMANCE SYNTHETIC GREASE	675961 675962	3 oz. tube 400 g cartridge	-40°F to 420°F (-40°C to 216°C)	▲		▲		▲	▲		▲	▲	▲	
SPECIALTY OILS & LUBRICANTS	LB 8801™ SILICONE LUBRICANT	234317	5.3 oz. tube	400°F (204°C)	▲		■			△				△	
SPECIALTY OILS & LUBRICANTS	LB 8017™ MOLY DRY FILM LUBRICANT	1786074 233501 233503	12 oz. net wt. aerosol 1.3 lb. can 10 lb. can	750°F (400°C)			△	△	▲				△	▲	▲
SPECIALTY OILS & LUBRICANTS	LB 8713™ SUPER PENETRATING OIL	1865406	12.25 oz. net wt. aerosol	250°F (121°C)		△									
SPECIALTY OILS & LUBRICANTS	LB C-200™ HIGH TEMPERATURE SOLID FILM LUBRICANT	233496	1.3 lb. can	2400°F (1315°C)			▲	△					△		▲
SPECIALTY OILS & LUBRICANTS	LB 8040™ FAST ACTING CORROSION RELEASE	2343777	400 ml aerosol	N/A		△									
PETROLEUM-BASED GREASES	LB 8529™ LITHIUM GREASE	1906122	10.75 oz. net wt. aerosol												
PETROLEUM-BASED GREASES	LB 8423™ DIELECTRIC GREASE	270640	0.33 oz. tube	400°F (204°C)			■	■							

△ Good Choice ▲ Preferred Choice ■ Acceptable Choice

73	Potting, Molding & Encapsulating
75	Epoxies & Polyurethanes
79	Silicones
83	Hot Melts
85	Low Pressure Molding

Potting and encapsulating compounds are used to provide mechanical reinforcement to housed assemblies, to fill large voids, and to protect components from the effects of exposure to chemicals, moisture, mechanical shock and vibration. Sealing components with potting and encapsulating compounds prevents corrosion and ensures long-term integrity of the device.

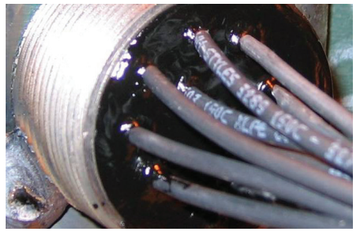
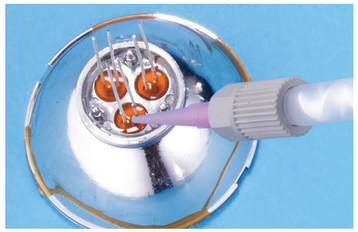
VARIABLES TO CONSIDER WHEN SELECTING A POTTING OR ENCAPSULATING MATERIAL INCLUDE:

- Viscosity of uncured compound
- Dispensing requirements
- Device operating temperature
- Desired chemical resistance
- Desired thermal conductivity
- Desired flame retardance
- Hardness of cured product
- Overall cost

There are a variety of potting and encapsulating compounds to choose from – epoxy, hot melt, silicone and urethane. The thermal properties of epoxy and silicone systems make them ideally suited for applications exposed to temperatures above 257°F (125°C). If a soft, flexible material is needed, particularly at low temperatures, then a urethane, silicone or hot melt material may be used.

WHAT IS THE BEST PRODUCT FOR MY APPLICATION?

The following chart may assist you when selecting a potting or encapsulating compound. This chart is intended to serve as a general guideline to help you determine which categories are best suited for your application. The data presented represents typical properties for each product category; however, individual product properties may differ. It is suggested that, based on the information provided, you consider at least the two best product categories that meet your application criteria. Individual product information can then be found on the pages that follow to help you narrow your search.

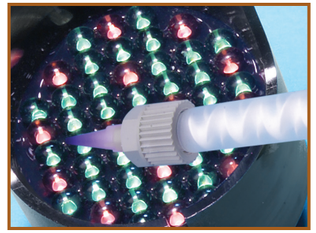
Potting, Molding & Encapsulating

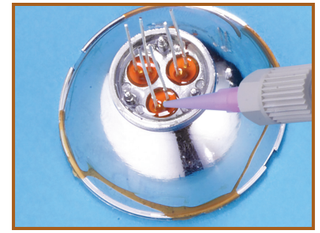
PERFORMANCE CONSIDERATIONS	POTTING & ENCAPSULATING COMPOUNDS			
	HOT MELTS	POLYURETHANES	EPOXIES	SILICONES
BENEFITS	Fast, large gap filling	Excellent toughness/flexibility	Wide range of formulations	Excellent temperature resistance
LIMITATIONS	Low heat resistance	Liquid adhesive sensitive to moisture	Mixing required	Low strength
TEMPERATURE RESISTANCE	-85°F to 257°F (-65°C to 125°C)	-85°F to 257°F (-65°C to 125°C)	-85°F to 356°F (-65°C to 180°C)	-85°F to 392°F (-65°C to 200°C)
FLUID RESISTANCE				
POLAR SOLVENTS[1]	Good (Polyolefins, Polyamides)	Good	Very Good	Good
NON-POLAR SOLVENTS[2]	Good (Polyamides)	Good	Excellent	Poor
HARDNESS	Semisoft	Soft	Rigid	Soft
FLEXIBILITY	High	High	Low	Very High
GLASS TRANSITION TEMPERATURE (TG)	Low	Low	High	Very Low
PERFORMANCE CONSIDERATIONS	POTTING & ENCAPSULATING COMPOUNDS			
	HOT MELTS	POLYURETHANES	EPOXIES	SILICONES
NUMBER OF COMPONENTS	1	2	2	1
CURE TEMPERATURE	Room Temperature (applied at elevated temperature)	Room Temperature	Room Temperature	UV/Room Temperature
GEL TIME				
AVERAGE	60 seconds	1 to 3 hours	1 to 3 hours	30 seconds
FASTEST	10 to 20 seconds	15 minutes	15 minutes	5 seconds
FULL CURE TIME	1 hour (or when cooled)	24 hours	24 hours	24 hours
DEPTH OF CURE	Unlimited	Unlimited	Unlimited	Shallow (<1.5 in.)
DISPENSING/CURING EQUIPMENT REQUIRED?	Yes	Yes	Yes	Yes
LIGHT CURE VERSIONS AVAILABLE?	No	No	Yes	Yes

[1] Examples of Polar Solvents: Water, Ethylene Glycol, Isopropyl Alcohol, Acetone.
[2] Examples of Non-Polar Solvents: Motor Oil, Gasoline, Toluene, n-Heptane, ATF.

PLEASE NOTE: This chart should not be used to specify products without specific testing. It is recommended that you conduct on-part testing to ensure product performance before specifying any adhesives.

Epoxies & Polyurethanes





Your Application — WHAT IS THE MOST IMPORTANT ASPECT WHEN CHOOSING YOUR PRODUCT?

- Flame Retardant → Fast Cure → UL 94V-0 Rating
- High Temperature Resistance → Metal Bonding/High Chemical Resistance
- Explosion Proof Sealing

Solution

	UK 3364™	PE 3141™ A	EA E-40EXP™
Key Feature	Fast Cure, 1:2 Mix Ratio	High Temperature	Chemical Resistant
Color	Black	Mixed: Black	Black
Viscosity cP (Resin/ Hardener)	N/A	Mixed: 7,000	N/A

Product Description

LOCTITE® UK 3364™ Urethane Adhesive

Rigid two-component urethane designed for flame resistance and fast cure.

IDH	Package Size
1166733	50 ml dual cartridge

LOCTITE® PE 3141™ A Epoxy Adhesive Resin

Resin formulated to offer improved long-term performance at higher temperatures when mixed with a LOCTITE® Epoxy Hardener (PE 3163™, PE 3164™, PE 3165™ B).

IDH	Package Size
233530	1 gallon pail

LOCTITE® EA E-40EXP™ Epoxy Adhesive

A two-component, room-temperature curing epoxy potting compound designed to pass UL testing and maintain more than 85% of its compression strength following exposure to 13 harsh chemicals.

IDH	Package Size
1511653	200 ml dual cartridge

* Made-to-order item. ** Pneumatic only.

EPOXIES & POLYURETHANES

LOCTITE® potting and encapsulating compounds are two-part epoxy and polyurethane systems formulated to offer a wide range of performance characteristics matched to specific application requirements. Any epoxy resin can be combined with any epoxy hardener to create a mixed system. The same applies to the polyurethane resins and hardeners.

LOCTITE® Epoxy Product Chart

LOCTITE® PRODUCT		IDH NUMBER	PACKAGE TYPE & SIZE	PACKAGE WEIGHT	KEY FEATURES
LOCTITE® EPOXIES	RESINS	PE 3140™ A	233524 233526*	1 gallon pail 5 gallon pail	12 lbs. 65 lb.	General-Purpose
		PE 3141™ A	233530	1 gallon pail	12 lbs.	High Temperature
	HARDENERS	PE 3162™ B	233557	1 quart can	1.8 lbs.	Fast Cure

LOCTITE® Polyurethane Product Chart

LOCTITE® PRODUCT		IDH NUMBER	PACKAGE TYPE & SIZE	PACKAGE WEIGHT	KEY FEATURES
LOCTITE® POLYURETHANES	UK 3182™	233626	1 gallon pail	12 lbs.	Fast Cure
	UR 3371™	2799582 2795475 2799581 2799583 2800363	300 ml – White 20 oz. – White 300 ml – Grey 300 ml – Black 20 oz. – Grey		High Tack, UV Resistance

LOCTITE® Epoxy Kit Properties Chart

LOCTITE® PRODUCT		IDH NUMBER	PACKAGE TYPE & SIZE	COLOR	WORK LIFE	SHORE HARDNESS	AGENCY APPROVALS	KEY FEATURES
LOCTITE® EPOXY KITS	EA E-60NC™	237113 237114 237115	50 ml dual cartridge 200 ml dual cartridge 400 ml dual cartridge	Black	60 min.	D 85	CFIA Listed	Electrically noncorrosive, low viscosity
	EA E-30CL™	237116 237117 237118	50 ml dual cartridge 200 ml dual cartridge 400 ml dual cartridge	Clear	30 min.	D 85	N/A	Medium fixture, chemical resistant
	EA E-40EXP™	1511653	200 ml dual cartridge	Black	35 min.	D 80	UL 674	Chemical resistant, use in hazardous locations

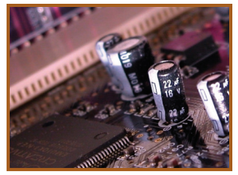
LOCTITE® Polyurethane Kit Properties Chart

LOCTITE® PRODUCT		IDH NUMBER	PACKAGE TYPE & SIZE	COLOR	WORK LIFE	SHORE HARDNESS	AGENCY APPROVALS	KEY FEATURES
LOCTITE® POLYURETHANE KIT	UK 3364™	1166733	50 ml dual cartridge	Black	45 sec.	D 80	UL 94V-0	Fast cure, 1:2 mix ratio, black

LOCTITE® Polyurethane System Properties Chart

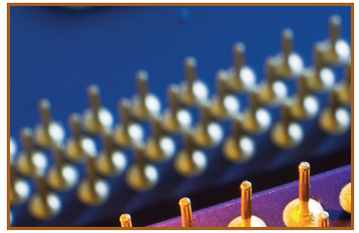
SYSTEM CHARACTERISTICS			LOCTITE® POLYURETHANE SYSTEMS UK 3182™
TYPICAL UNCURED PROPERTIES	VISCOSITY (cP)	Resin	75
		Hardener	30,000
		Mixed	5,500
	WORKING TIME	At 73°F (23°C)	<7 minutes @ 300 g
	GEL TIME	At 73°F (23°C)	14 minutes @ 300 g
	CURE CYCLE	Normal 73°F (23°C)	90 minutes
		Alternate 185°F (85°C)	30 minutes
	MIX RATIO	By Weight (Resin : Hardener)	13:87
		By Volume (Resin : Hardener)	1:5.2
	COLOR	Resin	Dark Brown
		Hardener	Black
		Mixed	Black
	SPECIFIC GRAVITY	Resin	1.23
		Hardener	1.60
		Mixed	1.55
TYPICAL CURED PROPERTIES	SHORE HARDNESS		A 75
	GLASS TRANSITION TEMPERATURE/Tg (°C)		-10
	CTE ABOVE Tg (M/MM°C)		128x10e-6
TYPICAL CURED PROPERTIES	DIELECTRIC CONSTANT	0.1 kHz	4.68
		1.0 kHz	4.02
		10.0 kHz	3.76
		100.0 kHz	3.63
	DISSIPATION FACTOR	0.1 kHz	0.13
		1.00 kHz	0.07
		10.0 kHz	0.04
		100.0 kHz	0.02
	INSULATION RESISTANCE (OHMS)		2.5x10e+13
	VOLUME RESISTIVITY (OHMS/CM)		1.5x10e+15
	DIELECTRIC STRENGTH (VOLTS/MIL)		370
	FLAMMABILITY RATING		N/A
	UL FILE NO. E257711		N/A

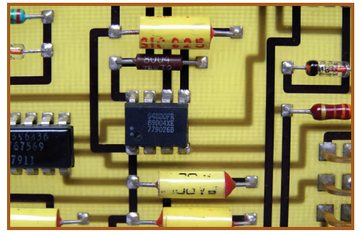
Epoxies & Polyurethanes



SYSTEM CHARACTERISTICS			LOCTITE® PE 3140™ A EPOXY SYSTEM	LOCTITE® PE 3141™ A EPOXY SYSTEM
			PE 3140™ A/ PE 3162™ B	PE 3141™ A/ PE 3162™ B
TYPICAL UNCURED PROPERTIES	VISCOSITY (cP)	Resin	11,000	80,000
		Hardener	120	120
		Mixed	2,000	5,000
	WORKING TIME	73°F (25°C)	5 to 10 min. @ 100 g	5 min. @ 200 g
	GEL TIME	73°F (25°C)	10 to 15 min. @ 105 g	10 to 15 min. @ 200 g
	CURE CYCLE	Normal 73°F (25°C)	16 hrs.	24 hrs.
		Alternate 150°F (60°C)	1 hr.	2 hrs.
	MIX RATIO	By Weight (R:H)	100:18.1	100:19.8
		By Volume (R:H)	3.6:1	3:1
	COLOR	Resin	Black	Black
		Hardener	Clear	Clear
		Mixed	Black	Black
	SPECIFIC GRAVITY	Resin	1.64	1.61
		Hardener	0.99	0.99
		Mixed	1.48	1.46
TYPICAL CURED PROPERTIES	SHORE HARDNESS		D 80	D 90
	GLASS TRANSITION TEMPERATURE/Tg (°C)		35	75
	CTE ABOVE Tg (MM/MM°C)		125x10e-6	135x10e-6
	CTE BELOW Tg (MM/MM°C)		37.5x10e-6	39.7x10e-6
	DIELECTRIC CONSTANT	0.1 kHz	4.25	3.91
		1.0 kHz	4.20	3.88
		10.0 kHz	4.16	3.84
		100.0 kHz	4.10	3.79
TYPICAL ELECTRICAL PROPERTIES	DISSIPATION FACTOR	0.1 kHz	0.010	0.01
		1.0 kHz	0.011	0.01
		10.0 kHz	0.012	0.01
		100.0 kHz	0.013	0.01
	INSULATION RESISTANCE (OHMS)		2.67x10e+13	4.09x10e+13
	VOLUME RESISTIVITY (OHMS/CM)		2.53x10e+15	2.61x10e+15
	DIELECTRIC STRENGTH (VOLTS/MIL)		385	355
	FLAMMABILITY RATING UL FILE NO. E257711		N/A	N/A
	INSULATION SYSTEM UL FILE NO. E257711		N/A	N/A

Silicones





Your Application

- Single-component, tough, protective
- Seal components against moisture, solvents and environmental conditions
- Cure in as little as 30 seconds to depths of 0.150 in. when exposed to UV light or visible light

WHAT IS THE MOST IMPORTANT ASPECT WHEN CHOOSING YOUR PRODUCT?

- High Adhesion
  - Deep Potting
  - Difficult-to-Bond Substrates
- Self-Leveling
  - Flowable
  - Noncorrosive
- Ultra-Clear
  - Tack-Free

Solution

	SI 5031™	SI 5056™	SI 5055™	SI 5240™	SI 5623™
Key Feature	Low Viscosity, Self-Leveling	ISO 10993 Compliant	Flowable	ISO 10993 Compliant	Tack-Free
Color	Clear/Yellowish Tint	Clear/Yellowish Tint	Clear/Yellowish Tint	Clear/Yellow to Green Tint	Clear
Viscosity, cP (Resin/Hardener)	5,500	2,200	525	18,000	Mixed: 700

Product Description

LOCTITE® SI 5031™ Silicone Potting Compound

High Adhesion/Visible Light

A low viscosity, self-leveling, UV or visible light curing silicone for high speed deep potting, coating and sealing applications. Provides high adhesion for difficult-to-bond substrates.

IDH	Package Size
693986	300 ml cartridge

LOCTITE® SI 5056™ Light Cure Adhesive

Self-Leveling/High Adhesion

A UV or visible light curing, noncorrosive silicone with very high bond strength. Ideal for high speed adhesion and sealing applications. High adhesion for difficult-to-bond substrates.

IDH	Package Size
1214249	25 ml syringe
1214250	1 liter bottle

LOCTITE® SI 5055™ Silicone Adhesive Sealant

Self-Leveling/Flowable

A UV or visible light curing, noncorrosive silicone for high speed coating, potting adhesion, or sealing applications. High adhesion for difficult-to-bond substrates.

IDH	Package Size
1212167	25 ml syringe
1214246	1 liter bottle

LOCTITE® SI 5240™ Medical Device Sealant

Self-Leveling/Noncorrosive

A UV or visible light and moisture curing, noncorrosive silicone ideal for high speed adhesion and sealing applications. High adhesion for difficult-to-bond substrates.

IDH	Package Size
1010341	25 ml syringe
1010320	300 ml cartridge

LOCTITE® SI 5623™ Silicone Potting Compound

Ultra-Clear/Soft Gel

Two-part, ultra-clear, tack-free, noncorrosive silicone gel. Transparent in color. Tough gel. Room temperature cure or accelerated heat cure.

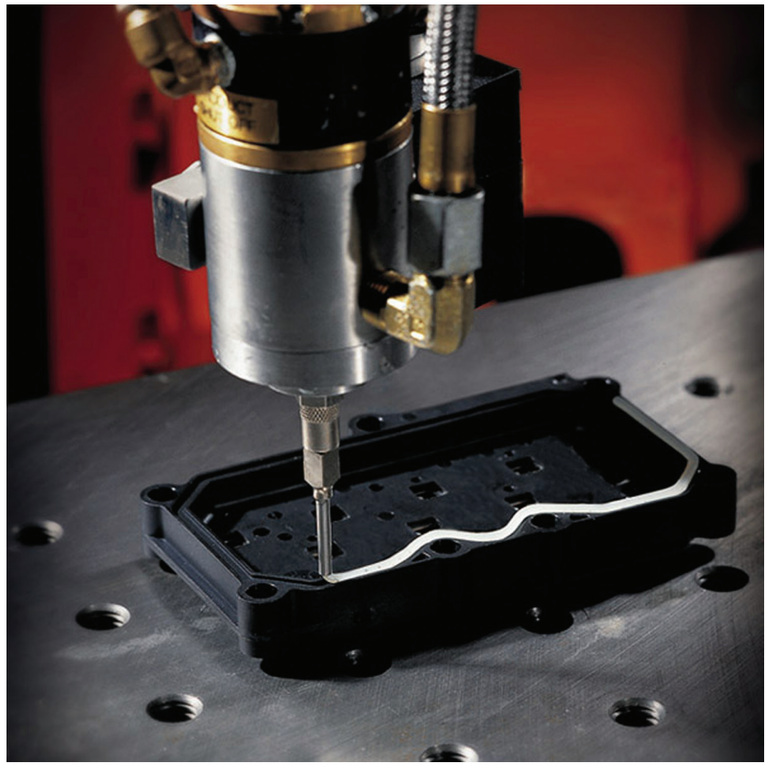
IDH	Package Size
1259300	400 ml dual cartridge

Silicones

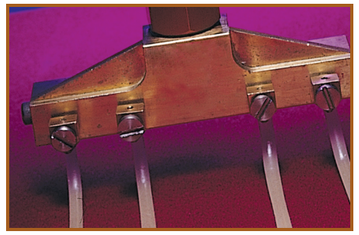
LOCTITE® Silicone Potting Compound Properties Chart

LOCTITE® PRODUCT		IDH NUMBER	PACKAGE TYPE & SIZE	CURE SCHEDULE (Cure/Alt. Cure)	VISCOSITY (cP)	GEL TIME	SHORE HARDNESS	AGENCY APPROVALS
LOCTITE® SILICONE POTTING COMPOUNDS	SI 5031™	693986	300 ml cartridge	UV/visible light/moisture 60 seconds @ 40 mW/cm²	5,500	Seconds	A 34	N/A
	SI 5040™	735869 735868	85 g tube 300 ml cartridge	Moisture 24 hours @ 77°F (25°C)	35,000	<3 hours (skin over)	A 30	MIL-A-46146B
	SI 5055™	1212167 1214246	25 ml syringe 1 liter bottle	60 seconds @ 70 mW/cm²	525	Seconds	A 55	ISO 10993 Compliant
	SI 5056™	1214249 1214250	25 ml syringe 1 liter bottle	60 seconds @ 70 mW/cm²	2,200	Seconds	A 43	ISO 10993 Compliant
	SI 5240™	1010341 1010320	25 ml syringe 300 ml cartridge	60 seconds @ 70 mW/cm²	18,000	Seconds	A 45	ISO 10993 Compliant
	SI 5620™	1257478	400 ml dual cartridge	Two-Part 30 minutes @ 77°F (25°C)	Part A - 220 Part B - 190 Mixed - 200	20 minutes**	A 35	N/A
	SI 5623™	1259300	400 ml dual cartridge	Two-Part 1 hour @ 212°F (100°C) 24 hours @ 77°F (25°C)	Part A - 700 Part B - 700 Mixed - 700	120 minutes**	OO 40	N/A

* Made-to-order item. ** Pot life.



Hot Melts



Your Application

- Well-suited for fast, deep potting applications requiring large gap fills in high speed manufacturing environments
- Used for potting and encapsulating in the electronics industry

WHAT IS THE MOST IMPORTANT ASPECT WHEN CHOOSING YOUR PRODUCT?

Flame Retardant	High Temperature	Low Temperature, General-Purpose	Flowable

Solution

	PA 7809FR™	PA 7811™	1942™	PA 7901™
Color	Amber	Amber	Tan	Amber
Viscosity (cP) at Dispense Temperature	7,000	4,250 to 6,400	5,000	750
Open Time (sec.)	35	35	30	35
Temperature Resistance	240°F	266°F	142°F	300°F

Product Description

TECHNOMELT® PA 7809FR™ Hot Melt Adhesive

Fire Retardant

Modified with fire retardant materials. It has a UL 94V-O flammability rating.

IDH	Package Size
83675	Superstick (10 in.) 32 lb. carton
83676	Polyshot 25 lb. pail

TECHNOMELT® PA 7811™ Hot Melt Adhesive

High Temperature

A high performance polyamide with exceptional high temperature resistance and impact resistance at low temperatures.

IDH	Package Size
83340	Polyshot 25 lb. pail
83338	40 lb. carton pellets

TECHNOMELT® 1942™ Hot Melt Adhesive

General-Purpose

Medium setting, general-purpose hot melt adhesive. Excellent adhesion to wood and many plastics. Not recommended for high temperature potting applications.

IDH	Package Size
83267	40 lb. carton pellets
83269	Maxistick 35 lb. carton
83274	Superstick (10 in.) 25 lb. carton
83277	Polyshot 35 lb. carton

TECHNOMELT® PA 7901™ Hot Melt Adhesive

Polyamide

Low viscosity polyamide used extensively for potting and encapsulating.

IDH	Package Size
83342	40 lb. carton pellets

TECHNOMELT® Hot Melt Adhesive Properties Chart

TECHNOMELT® PRODUCT		IDH NUMBER	PACKAGE TYPE & SIZE	COLOR	VISCOSITY (cP) AT DISPENSE TEMPERATURE	TENSILE STRENGTH (psi)	OPEN TIME	TEMPERATURE RESISTANCE	% ELONGATION	SHORE HARDNESS	AGENCY APPROVALS
TECHNOMELT® HOT MELT ADHESIVES	1942™	83267 83269 83274 83277	40 lb. carton pellets Maxistick 35 lb. carton Superstick (10 in.) 25 lb. carton Polyshot 35 lb. carton	Tan	5,000	250	30 seconds	142°F	500	N/A	FDA CFR175.105
	PA 7809FR™	83675 83676	Superstick (10 in.) 32 lb. carton Polyshot 25 lb. pail	Amber	7,000	363	35 seconds	240°F	373	A 85	UL Classified for U.S.
	PA 7811™	83340 83338	Polyshot 25 lb. pail 40 lb. carton pellets	Amber	4,250 6,400	400	35 seconds	266°F	1,200	N/A	N/A
	PA 7901™	83342	40 lb. carton pellets	Amber	750	260	35 seconds	300°F	80	A 84	N/A

Low Pressure Molding

Your Application

- Low-pressure, high-speed molding with adhesives for fragile and delicate components
- Short cycle time and single-step process
- Encapsulation of components provides complete sealing and subsequent environmental resistance

WHAT TYPE OF MOLDING MATERIAL DO YOU NEED?

- High Rigidity
  - Good Adhesion
  - Highest Hardness
    - Amber
    - Black
  - Exposure to Sunlight
  - High Temperature Resistance
    - Amber
    - Black
- High Flexibility
  - High Relative Thermal Index (RTI)
  - Exposure to Sunlight
  - Cold Temperature Performance
  - Adhesion to Low Surface Energy Materials

Solution

	PA 7838™ BLACK	PA 7841™	PA 7846™ BLACK	PA 7848™ BLACK	PA 7873™	PA 7878™ BLACK	PA 7808™ BLACK	PA 7844™ BLACK	PA 7857™ BLACK	AS 7875™
Color	Black	Amber	Black	Black	Amber	Black	Black	Black	Black	Opaque White
Hardness (Shore A)	90A	92A	92A	93A	90A	90A	82A	76A	77A	45A
Maximum Working Temperature (°C)	130	130	130	130	140	140	110	110	100	100
Viscosity at 210°C (cP)	3,500	7,000	7,000	7,300	3,000	3,000	3,000	10,000	4,000	2,200

Product Description

TECHNOMELT® PA 7838™ BLACK
Moldable black polyamide for higher temperature applications, with service temperatures up to 130°C (266°F).
IDH Package Size
1762953 44 lb. bag

TECHNOMELT® PA 7841™
Moldable amber polyamide that can be used where high strength and hardness are needed, such as with computer connectors.
IDH Package Size
1762906 44 lb. bag

TECHNOMELT® PA 7846™ BLACK
Moldable black polyamide that can be used where high strength and hardness are needed, such as with computer connectors.
IDH Package Size
1764113 44 lb. bag

TECHNOMELT® PA 7848™ BLACK
Moldable black polyamide with improved UV stability that is suitable for outdoor applications.
IDH Package Size
1764108 44 lb. bag

TECHNOMELT® PA 7873™
Moldable amber polyamide with good adhesion for higher temperature applications up to 140°C (284°F).
IDH Package Size
1763724 44 lb. bag

TECHNOMELT® PA 7878™ BLACK
Moldable black polyamide with good adhesion for higher temperature applications up to 140°C (284°F).
IDH Package Size
1762904 44 lb. bag

TECHNOMELT® PA 7808™ BLACK
Moldable black polyamide with excellent adhesion to tough substrates and superior flexiblity. This product is ideal for strain relief on cables and wires and for the encapsulation of heat-producing components in electrical devices. Has a UL RTI of 95°C (203°F).
IDH Package Size
1762910 44 lb. bag

TECHNOMELT® PA 7844™ BLACK
Moldable black polyamide with improved UV stability that is suitable for outdoor applications. Enhanced adhesion to low surface energy plastics compared to other polyamides.
IDH Package Size
1925259 40 lb. bag

TECHNOMELT® PA 7857™ BLACK
Moldable black polyamide that can be used where excellent adhesion and cold temperature flexibility are important.
IDH Package Size
1762909 44 lb. bag

TECHNOMELT® AS 7875™
Moldable polyolefin hot melt for applications demanding moisture and solvent resistance. It exhibits excellent adhesion to low surface energy plastics.
IDH Package Size
1762907 55 lb. bag

Low Pressure Molding

Process

Traditional Potting Process Flow

MOLD HOUSING → INSERT COMPONENTS → DISPENSE AND ENCAPSULATE → SETTLING OR VACUUM → CURE → TEST

Low Pressure Process Flow

INSERT COMPONENTS → OVERMOLD → TEST

Key Benefits

Design

- Functional design allows for alternative solutions (simplified process vs. traditional technologies)
- Improved look and image

Process

- Reduces total cost of ownership
  - Low capital equipment costs and reduced footprint
    - Increased throughput
- Low-viscosity materials allow for low injection pressures
- Less handling and shorter process time
- No cure process required

Products

- Adhesion to multiple surfaces
- Complete watertight encapsulation
- Safe, 1-component, UL 94V-0 approved
- High temperature resistance
- Compliant materials suitable for sensitive electrical and telecommunication components

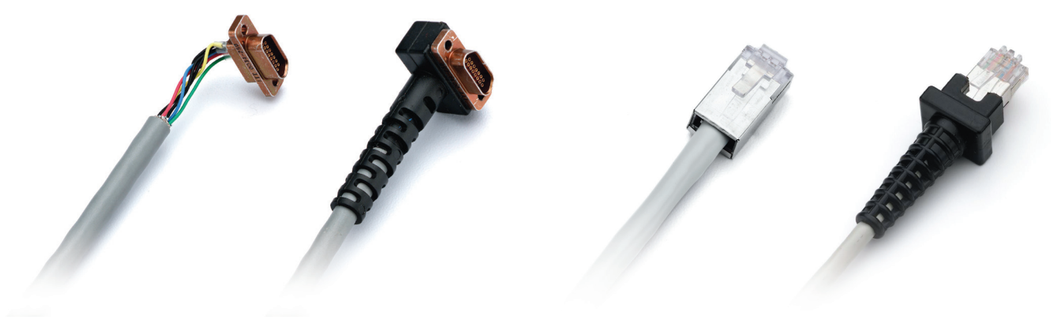
Sustainability

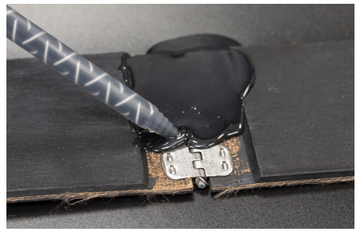
- Zero waste
- All excess material and scrap are recyclable
- Natural ingredients

Through the combination of Product, Process and Design, Low Pressure Molding with TECHNOMELT® delivers customers an advanced and environmentally sustainable solution to component protection.

TECHNOMELT® Low Pressure Molding Properties Chart

TECHNOMELT® PRODUCT		TYPE	IDH #	PKG TYPE & SIZE	COLOR	HARDNESS (SHORE A)	TENSILE STRENGTH (PSI)	% ELONGATION	WORKING TEMPERATURE RANGE	AGENCY LISTING
TECHNOMELT® LOW PRESSURE MOLDINGS	PA 7808™	Polyamide	1762932	44 lb. bag	Amber	82A	520	600	-40°C to 110°C	UL 94V-0, 95°C RTI
	PA 7808™ BLACK	Polyamide	1762910	44 lb. bag	Black	82A	520	450	-40°C to 110°C	UL 94V-0, 95°C RTI
	PA 7833™	Polyamide	1762931	44 lb. bag	Amber	90A	750	300	-40°C to 130°C	UL 94V-0
	PA 7838™ BLACK	Polyamide	1762953	44 lb. bag	Black	90A	750	300	-40°C to 130°C	UL 94V-0
	PA 7841™	Polyamide	1762906	44 lb. bag	Amber	92A	1,310	650	-10°C to 130°C	—
	PA 7846™ BLACK	Polyamide	1764113	44 lb. bag	Black	92A	1,310	650	-40°C to 130°C	UL 94V-0
	PA 7848™ BLACK	Polyamide	1764108	44 lb. bag	Black	93A	1,310	550	-40°C to 130°C	UL 94V-2, f2 rating for outdoor weatherability
	PA 7852™	Polyamide	1762908	44 lb. bag	Amber	77A	460	400	-40°C to 100°C	UL 94V-0
	PA 7857™ BLACK	Polyamide	1762909	44 lb. bag	Black	77A	390	350	-40°C to 100°C	UL 94V-0
	PA 7873™	Polyamide	1763724	44 lb. bag	Amber	90A	800	400	-40°C to 140°C	UL 94V-0
	PA 7878™ BLACK	Polyamide	1762904	44 lb. bag	Black	90A	800	400	-40°C to 140°C	UL 94V-0
	PA 7844™ BLACK	Polyamide	1925259	40 lb. bag	Black	76A	1,000	700	-20°C to 110°C	—
	PA 6782™	Polyamide	2071767	44 lb. bag	Black	82A	800	800	-40°C to 100°C	—
	AS 4226™ NA	Acrylic	2040377	44 lb. bag	Clear	90A	1,450	250	-40°C to 85°C	—
	AS 7875™	Polyolefin	1762907	55 lb. bag	Opaque White	45A	120	400	-30°C to 100°C	—





89	Repairing, Rebuilding & Restoring
91	Belt Repairs & Urethanes
93	Maintenance & Repair Epoxies

WHY USE LOCTITE® REPAIRING, REBUILDING AND RESTORING PRODUCTS?

The LOCTITE® Repairing, Rebuilding and Restoring products are designed to optimize performance on various substrates. Substrate is the most important factor when choosing a repair, rebuild or restoring product. The correct product for each substrate will make a significant impact on the integrity of the repair. We offer solutions for permanent as well as temporary fixes, providing proven savings for processes and applications.

TRADITIONAL METHODS VS. LOCTITE® MODERN SOLUTIONS

Traditional methods of repair, such as part replacement and custom manufacturing, are high cost solutions compared with using LOCTITE® Repairing, Rebuilding and Restoring products. You can find a quick remedy and return parts to service with little interruption and downtime to your process.

KEY BENEFITS OF LOCTITE® REPAIRING, REBUILDING AND RESTORING PRODUCTS:

- Cost savings
- Minimal downtime
- Improved safety
- Epoxies can be drilled and tapped after cure
- Available in varying viscosities and kneadable form
- Available in colors to match varying metals

WHAT IS THE PROPER SURFACE PREPARATION FOR REPAIR EPOXIES?

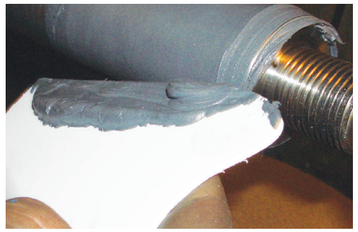
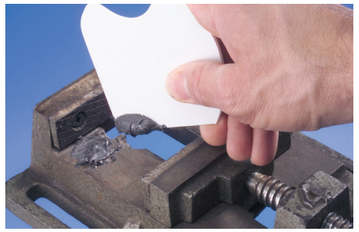
A properly prepared surface is one that has been cleaned, dried and abraded. Substrates should be free from contamination, including oils, grease, dust, etc. It is also important that a surface is dry before working with a repair epoxy because moisture on the surface can interfere with the curing process. The final step is to abrade the surface to provide an increased surface area for bonding. When working with metals, the surface should be abraded to a near-white metal finish, which also helps to ensure that all surface corrosion is removed.

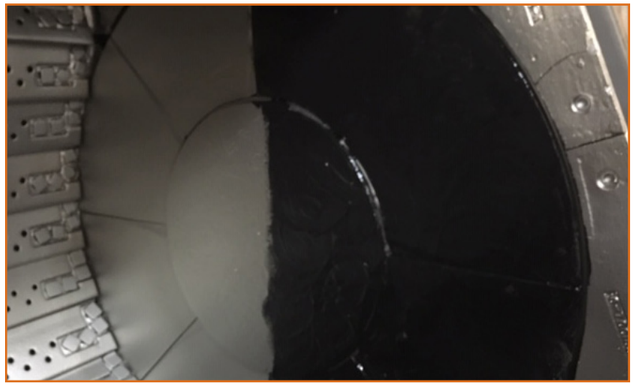
APPLICATIONS:

- Pump
- Gearbox
- Concrete Repair
- Conveyor Systems
- Shaft Repair

INDUSTRIES:

- Mining
- Wastewater
- Power Generation
- Food Processing
- Pulp and Paper
- Beverage



Belt Repairs & Urethanes

Your Application

Belt Repairs:

- Provide durable, tough and flexible repairs of conveyor belts and other damaged rubber equipment quickly and easily

Urethanes:

- Can be troweled, cast or brush-applied to rebuild or protect critical operating equipment
- Provide protection from impact, abrasion and corrosion
- Nonshrinking and unaffected by oil, grease and water
- Maximum adhesion and product reliability ensured by use of recommended accessories

CONVEYOR BELT REPAIR

Is this a temporary or a long-term repair?

Long-Term

Do you require a fast return to service or a long working time?

Fast Return to Service → **PC 7350™**

Longer Working Time → **PC 7393™**

Solution

	PC 7350™	PC 7393™
Color	Black	Black
Working Time	10 min.	1 min.
Tensile Strength	1,600 psi	1,300 psi
Functional Cure	2 hrs.	2 hrs.

Product Description

LOCTITE® PC 7350™ Conveyor Belt Repair

LOCTITE® PC 7350™ is an adhesive, sealant and repair compound that offers an exceptional balance of self-leveling and fast cure. It is an excellent choice for on-site repairs, especially for conveyor belts and other rubber parts.

IDH	Package Size
2073202	400 ml cartridge
2084201	1 kg kit

LOCTITE® PC 7393™ Rapid Rubber Repair Kit

Our premium quality belt repair product is designed to repair conveyor belts and other damaged rubber equipment quickly and easily. Repairs will have the same durability and flexibility as the belt. The 400 ml cartridge requires the use of a LOCTITE® Fixmaster® Universal Dispenser (IDH number 1372751).

IDH	Package Size
432774	400 ml kit
428557	400 ml cartridge

ADDITIONAL RESOURCES

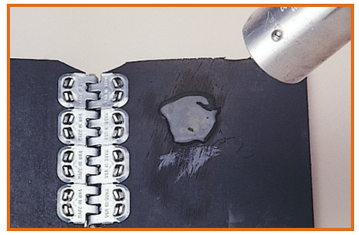
LOCTITE® Fixmaster® Universal Dispenser

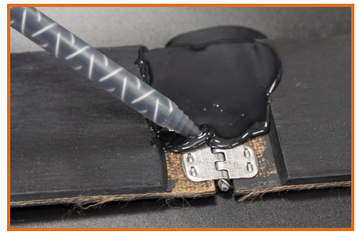
Handheld, manually operated dispenser designed specifically for use with LOCTITE® PC 7393™ Rapid Rubber Repair Kit.

Description:

- Two-part adhesives
- 400 ml cartridges
- Medium- to high-viscosity range

IDH #	
1372751	LOCTITE® Fixmaster® Universal Dispenser
243335	LOCTITE® EQ 7393™ Mixer





LOCTITE® Fixmaster® Belt Repair & Urethane Applications Chart

LOCTITE® PRODUCT	CASTING MOLDS, FIXTURES, PARTS	CONVEYOR BELT REPAIR (LONG-TERM)	CONVEYOR BELT REPAIR (TEMPORARY)	COATING IMPELLERS, FEEDER BOWLS	CHUTES, HOPPERS, DEFLECTION PLATES	REBUILDING RUBBER PARTS	LINING PUMPS	FORMING EXPANSION JOINTS
PC 7393™ RAPID RUBBER REPAIR KIT		▲					△	△
PC 7350™ FLEX CONVEYOR BELT REPAIR		△						

△ Good Choice ▲ Preferred Choice

LOCTITE® Belt Repair & Urethane Properties Chart

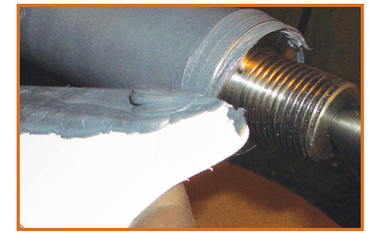
	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE & SIZE	COLOR	COVERAGE (IN.² AT 1/4 IN. THICKNESS)	MAXIMUM OPERATING TEMPERATURE (°F)	ADHESIVE TENSILE STRENGTH (psi)	% ELONGATION	SHORE HARDNESS	WORKING TIME (MINUTES)	FUNCTIONAL CURE (HOURS)	MIX RATIO BY VOLUME (RESIN: HARDENER)	MIX RATIO BY WEIGHT (RESIN: HARDENER)	AGENCY APPROVALS
BELT REPAIR	PC 7350™ CONVEYOR BELT REPAIR	2073202 2084201	400 ml cartridge 1 kg kit	Black	97.6 in.² 225.6 in.²	180	1,600	250	95	10	2	1:1	93:100	N/A
	PC 7393™ RAPID RUBBER REPAIR KIT	432774 428557	400 ml kit 400 ml cartridge	Black	188 188 33	180	1,300	360	A 82	1	2	1:1	N/A	N/A
	PC 7383™	2395759	10 kg kit	Black	1.26 m²	176	930	26	90	50	24	100:47	100:40	N/A

Properties based on mixing a 1 lb. unit at 77°F, seven days' cure.

LOCTITE® Belt Repair Accessories Chart

	LOCTITE® PRODUCT		IDH NUMBER	PACKAGE DESCRIPTION	COVERAGE	COLOR
BELT REPAIR ACCESSORIES	ETCHING AGENT	Enhances bonds to rubber	235638	3 fl. oz. bottle	190 in.² or approximately 1 can of each product for 2 lbs. of urethane	Clear
	UNIVERSAL DISPENSER	Dispenser	1372751	Required for use with 400 ml cartridge of LOCTITE® PC 7393™.		
	PC 7393™ MIXER	Static mixers	243335 874905	Packaged 6/bag – for mixing and dispensing LOCTITE® PC 7393™ in a 400 ml cartridge. Packaged 10/pack – for mixing and dispensing LOCTITE® PC 7393™ in a 150 ml coaxial cartridge.		

Maintenance & Repair Epoxies



Your Application

- High compressive strength
- Choice of mild steel aluminum or nonmetallic fillers
- Can be machined, drilled or tapped after cure
- Excellent resistance to aggressive chemicals

REPAIR OR REBUILD DAMAGED PARTS

What material are you filling?

- **Mild Steel**
  - **Pourable** → EA 3472™
  - **Putty** → EA 3471™, EA 3473™
  - **Kneadable Stick** → EA 3463™
  - **High Performance Chemical Resistance** → EA 3478™
- **Aluminum**
  - **Putty** → PC 7254™

Solution

	EA 3472™	EA 3471™	EA 3473™	EA 3463™	EA 3478™	PC 7254™
Color	Grey	Grey	Grey	Metallic Black	Dark Grey	Aluminum
Maximum Temperature	302°F (150°C)	356°F (180°C)	200°F (93°C)	350°F (175°C)	302°F (150°C)	356°F (180°C)
Working Time*	25 min.	30 min.	3 min.	3 min.	20 min.	20 min.
Cure Time*	6 hrs.	6 hrs.	10 min.	10 min.	6 hrs.	6 hrs.
Compressive Strength	9,700 psi	11,100 psi	10,800 psi	7,200 psi	9,900 psi	9,000 psi

Product Description

LOCTITE® EA 3472™ Steel-Filled Castable Epoxy

High steel content. Pourable liquid filler used for making fixtures and molding.
ABS Approved.

IDH	Package Size
235618	4 lb. kit

LOCTITE® EA 3471™ Steel Putty

High steel content putty. Recommended for repairing and rebuilding worn steel components, such as bearing and fan housings.
ABS Approved.

IDH	Package Size
219292	1 lb. kit

LOCTITE® EA 3473™ Fast Set Steel Putty

A fast curing version of steel putty. Recommended for repairing pipes and other emergency repairs.
ABS Approved.

IDH	Package Size
219293	1 lb. kit

LOCTITE® EA 3463™ 10-Minute Repair Epoxy

Kneadable, two-part paste. Working time is 3 minutes – sets in 10 minutes. Adheres to damp surfaces. Can be drilled, filed and painted. Ideal for emergency sealing of leaking tanks and pipes. Smooths welds, repairs small cracks in castings and fills oversized bolt holes.
NSF/ANSI 61 Certified.

IDH	Package Size
209681	4 oz. stick

LOCTITE® EA 3478™ Superior Metal

Formulated with fine alloy particles for high compressive strength and chemical resistance. Recommended for use on all metals. Outstanding compressive strength, chemical resistance, non-rusting.

IDH	Package Size
209822	1 lb. kit
40900	4 kg kit

LOCTITE® PC 7254™ Aluminum Putty

General-purpose, aluminum putty for repair of all aluminum alloy components.
ABS Approved.

IDH	Package Size
235615	1 lb. kit

* At 77°F (25°C).

Your Source for SUPERIOR METAL

LOCTITE® EA 3478™ Superior Metal 6-Step Process

STEP 1:
Clean completely.

STEP 2:
Gather product.

STEP 3:
Prepare product.

STEP 4:
Mix completely.

STEP 5:
Apply.

STEP 6:
Set.

VISCOSITY AND WORKING TIME

- The working time of an epoxy is the time required for the viscosity to double. Once the viscosity has doubled, epoxies are generally very hard to work with, so jobs should be completed before this time.
- Increasing the temperature of the product or substrate can increase the cure speed of an epoxy and initially reduce the viscosity.

Maintenance & Repair Epoxies

LOCTITE® Maintenance & Repair Epoxy Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE & SIZE	COLOR	COVERAGE	MAXIMUM TEMPERATURE† (°F)	COMPRESSIVE STRENGTH† (psi)	TENSILE STRENGTH† (psi)	SHORE HARDNESS	WORKING TIME	FUNCTIONAL CURE	MIX RATIO BY VOLUME	MIX RATIO BY WEIGHT	AGENCY APPROVALS
EPOXY STICKS	EA 3463™ 10-MINUTE REPAIR EPOXY*	209681	4 oz. stick	Metallic Black	16 in.²**	350	7,200	2700	D 70	4 minutes	10 minutes	N/A	N/A	NSF 61
POURABLE	EA 3472™ STEEL-FILLED CASTABLE EPOXY*	235618	4 lb. kit	Grey	13 in.³ 52 in.³	302	9,700	4530	D 84	25 minutes	6 hours	4:1	9.5:1	ABS, CFIA Listed, NEHC, NAVSEA
TROWELABLE	EA 3478™ SUPERIOR METAL*	209822	1 lb. kit	Dark Grey	0.25 ft.²** 2.2 ft.²**	302	19,490	3900	D 86	20 minutes	6 hours	4:1	7.25:1	CFIA Listed
TROWELABLE	EA 3471™ STEEL PUTTY*	219292	1 lb. kit	Grey	0.3 ft.²** 1.2 ft.²** 7.5 ft.²**	225	8,940	4040	D 82	30 minutes	6 hours	2.5:1	6.25:1	ABS, CFIA Listed, NEHC, NAVSEA
TROWELABLE	PC 7254™ ALUMINUM PUTTY*	235615	1 lb. kit	Aluminum	0.5 ft.²**	356	9,000	4,230	D 84	20 minutes	6 hours	4:1	6.3:1	ABS, CFIA Listed, NEHC, NAVSEA
TROWELABLE	EA 3476™ STAINLESS STEEL PUTTY*	235613	1 lb. kit	Grey	0.25 ft.²**	225	9,920	4,700	D 86	20 minutes	6 hours	4:1	9:1	ABS, CFIA Listed, NEHC, NAVSEA
TROWELABLE	EA 3473™ FAST SET STEEL PUTTY*	219293	1 lb. kit	Grey	0.4 ft.²**	200	7,380	3,970	D 80	3 minutes	10 minutes	1:1	1.8:1	ABS, CFIA Listed, NEHC, NAVSEA

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE & SIZE	COLOR (CURED)	MAXIMUM TEMPERATURE† (°F)	TENSILE STRENGTH† (psi)	WORK LIFE	FIXTURE TIME‡	FULL CURE (HOURS)	AGENCY APPROVALS
HIGH PERFORMANCE	PC 7222™ NORDBAK® WEAR RESISTANT PUTTY	235626 209827	1 lb. kit 3 lb. kit	Grey	225	1,450	30 minutes	1 hour	6	ABS, CFIA Listed, NEHC, NAVSEA
SPECIALTY PRODUCT	MR 2000™ EXTREME TEMPERATURE REPAIR PUTTY	235579	8 oz. can	Grey	2000	675	30 minutes	1 hour	7	N/A
SPECIALTY PRODUCT	EA 445™ FAST CURE EPOXY	209717 209718	10 - 0.12 fl. oz. cups 10 - 1 oz. cups	Grey	200	3815	3 minutes	10 minutes	4	N/A
SPECIALTY PRODUCT	EA 9017™ FAST CURE EPOXY	1324007	1 oz. oval syringe	Translucent	300	2,300	1 minute	5 minutes	1	ABS, CFIA Listed

* Properties are based on mixing 1 lb. mass at 77°F, seven days' cure.
** At 1/4 in. thickness.
† Ultimate cure.
‡ Time to reach handling strength.
§ Properties based on ultimate cure. Epoxy properties based on mixing 20 g mass at 77°F.

LOCTITE® Maintenance & Repair Epoxy Applications Chart

	LOCTITE® PRODUCT	EMERGENCY METAL REPAIRS	CORROSION PROTECTION	REPAIRING PIPES & TANKS	REBUILDING SHAFTS, KEYWAYS & BEARINGS	REPAIRING THREADED PARTS	RESTORING TUBE SHEETS	PUMP REPAIR	REPAIRING ENGINE BLOCKS	FIXTURES & PROTOTYPES	REBUILDING IMPELLERS & VALVES	REPAIRING ALUMINUM PARTS	REPAIRING STAINLESS STEEL PARTS	FORMING MOLDS & FIXTURES	WET SURFACE REPAIRS
EPOXY STICKS	EA 3463™ 10-MINUTE REPAIR EPOXY	▲		△						▲				▲	△
POURABLE	EA 3472™ STEEL-FILLED CASTABLE EPOXY			▲		▲				△				▲	
TROWELABLE	EA 3478™ SUPERIOR METAL		▲		▲	▲	▲	▲	▲		▲				
TROWELABLE	EA 3471™ STEEL PUTTY			▲					▲		△			▲	
TROWELABLE	PC 7254™ ALUMINUM PUTTY		△								▲	▲	△		
TROWELABLE	EA 3476™ STAINLESS STEEL PUTTY		△								▲	△	▲		
TROWELABLE	EA 3473™ FAST SET STEEL PUTTY	▲		▲					△						

△ Good Choice ▲ Preferred Choice ■ Acceptable Choice

LOCTITE® Fixmaster® Maintenance & Repair Epoxy Bonding Characteristics

	LOCTITE® PRODUCT	GAP FILLING	FAST CURE TIME	FERROUS METAL REPAIR	TOUGHENED FORMULATION	SHOCK RESISTANT	WATER RESISTANT	PLASTIC BONDING	RUBBER BONDING	METAL BONDING	SANDABLE FINISH	PAINTABLE FINISH
HIGH PERFORMANCE	EA 3473™ FAST SET STEEL EPOXY	△	▲	▲						△	▲	■
HIGH PERFORMANCE	PC 7222™ NORDBAK® WEAR RESISTANT PUTTY	▲			▲	▲	△					■
SPECIALTY PRODUCTS	MR 2000™ EXTREME TEMPERATURE REPAIR PUTTY	▲		▲							■	■

△ Good Choice ▲ Preferred Choice ■ Acceptable Choice

BOOST *YOUR MAINTENANCE PROCESSES:*

MONITOR
Check in on your equipment 24/7 via your preferred digital device.

IMPROVE
Allow your equipment to live last longer, and reduce default risks and spare parts inventory.

PROTECT
Make your plant safer for your team and for the planet by limiting its environmental impact.

OPTIMIZE
Generate data-driven insights that allow better decision-making and reduce stress levels.

PREDICT
Identify faults, anomalies and energy losses before they become functional failures.

PLAN
Schedule planned downtime and plan parts replacements well in advance.

RESOLVE
Tap into our adhesive heritage to find long-lasting fixes.

AS A RESULT: BOOST EFFICIENCY, CUT COSTS.
The ultimate outcome is a substantial time and cost advantage due to streamlined operations and increased productivity.

UNPARALLELED SIMPLICITY.

- **ONE PLATFORM:** bring high-end IIoT solutions and advanced AI algorithm capabilities together on a single platform – LOCTITE Pulse.
- **UNIVERSAL FIT:** monitor a wide range of critical static and rotating equipment.
- **ALL-IN-ONE APP:** equipment health status and notifications are centralized in an easy-to-use web-based app – that you can access anywhere, anytime.
- **EASY IMPLEMENTATION:** you decide which critical assets to monitor and to plug and play. No IT implications or hassle. It's as easy as that.
- **DECADES OF INDUSTRIAL MRO EXPERTISE:** leverage 70+ years of LOCTITE industrial expertise and repair solutions for efficient fixes and enhanced reliability.

ADDITIONAL RESOURCES

Find additional resources about LOCTITE Pulse through our website.

LOCTITE® Pulse

LISTEN TO YOUR ***EQUIPMENT'S HEARTBEAT.***

LOCTITE Pulse, powered by 70+ years of industrial expertise, is redefining industrial reliability. From cutting-edge monitoring technology to expert repair solutions for both static and rotating equipment. Our Industrial Internet of Things solutions are designed to help you stay ahead of your plant failures, reduce downtime, and improve safety and sustainability.

STATIC

Smart Flange

Smart Pipe & Tank

Smart Steam Trap

ROTATING

Smart Motor

Smart Pump

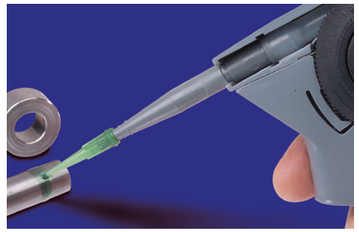
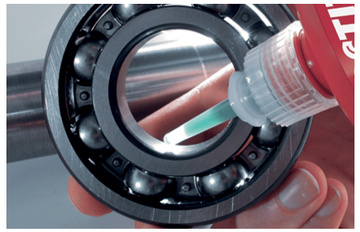
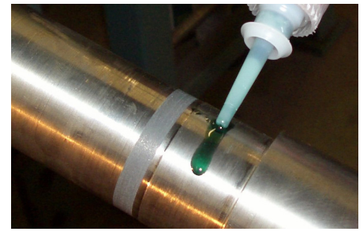
Smart Gear Box

Smart Fan

Smart Generator

Smart Compressor

... and more

99	Retaining
101	Retaining Compounds

WHY USE A LOCTITE® RETAINING COMPOUND?

LOCTITE® Retaining Compounds secure bearings, bushes and cylindrical parts into housings or onto shafts. They achieve maximum load transmission capability and uniform stress distribution and eliminate fretting corrosion. Applied as a liquid, they form 100% contact between mating metal surfaces, eliminating the need for expensive replacement parts, time consuming machining or the use of mechanical methods.

LOCTITE® RETAINING COMPOUNDS FILL THE INNER SPACE BETWEEN COMPONENTS AND CURE TO FORM A STRONG PRECISION ASSEMBLY.

LOCTITE® Retaining Compounds are superior to conventional assembly methods, including:

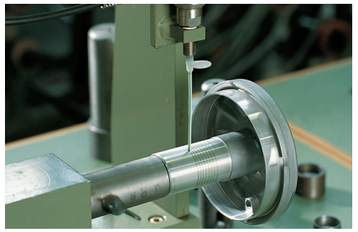
- Pins, key/keyway assemblies: These have uneven distribution of mass, an imbalance that can lead to vibration at high speeds.
- Splines: They cause high stresses due to the "notch effect" that occurs. Splines can also result in high machining costs and backlash between drive and overrun.
- Clamp rings, press fits, shrink fits, and taper fits: They rely on friction alone to transmit torque; therefore, they are limited by material, surfaces and design. Close tolerances are needed to obtain specific load capacities, leading to higher production costs. Interference fitting creates stresses in the components that can lead to failure, particularly when combined with operational stresses.
- Welding and soldering: Only compatible metals can be joined, and the parts can be distorted by the high temperatures required. Heating of the material can lead to residual stresses and structural degradation and distortion. Disassembly can also be difficult or impossible.

ADVANTAGES OF LOCTITE® RETAINING COMPOUNDS AS COMPARED TO CONVENTIONAL ASSEMBLY METHODS:

- High-strength products can carry high loads
- Fill all voids to prevent corrosion and fretting
- 100% contact – load and stress is distributed evenly over the joint

ADVANTAGES OF LOCTITE® RETAINING COMPOUNDS IN COMBINATION WITH SHRINK FITS OR PRESS FITS:

- Higher load transmission and performance with existing design and geometry solutions
- Equal performance by lower interference/ lighter construction



LOCTITE® adhesive mounting of cylindrical parts has distinct advantages over mechanical assembly alone. Using LOCTITE® retaining compounds allows a manufacturer to use slip-fitted parts with relaxed machining tolerances. LOCTITE® retaining compounds can reduce the size and weight of an assembly, reduce the number of components needed, and ultimately save money by reducing the overall manufacturing cost.

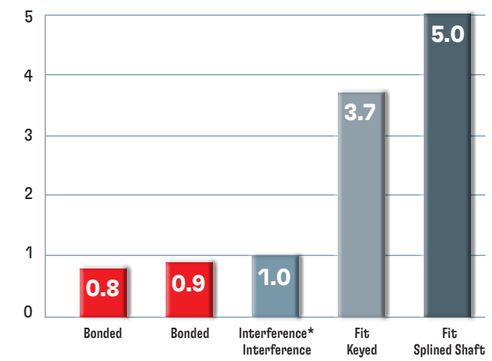
COST BENEFITS

- Reduce or eliminate expensive machining operations
- Eliminate some surface finishing requirements
- Prolong equipment life through better fatigue and corrosion resistance
- Fill gaps so machining tolerances can be widened
- Help lower overall assembly and maintenance costs
- Simplify assemblies by reducing use of circlips, keys, dowels or threads
- Can eliminate the need for mechanical retainers
- Minimize machine downtime, ensuring an earlier return to service

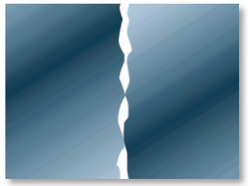
PERFORMANCE BENEFITS

- Increase assembly reliability
- Produce more accurate, rigid assemblies
- Eliminate backlash in keys and splines
- Prevent small diameter shaft distortion
- Increase strength of heavy press fits
- Eliminate fretting corrosion
- Seal against environmental corrosion
- Eliminate high assembly stresses
- Reduce variations in load transmission
- Allow dissimilar materials to be assembled more easily

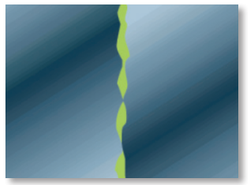
RELATIVE PRODUCTION COSTS



Cost is always an essential part of the selection process. When LOCTITE® Retaining Compounds are used, considerable cost benefits result.



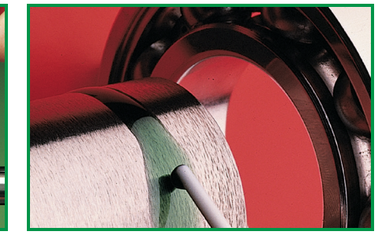
Typical interference fit has 30% metal-to-metal contact.



LOCTITE® Retaining Compounds fill air voids, resulting in unitized, more reliable assembly.

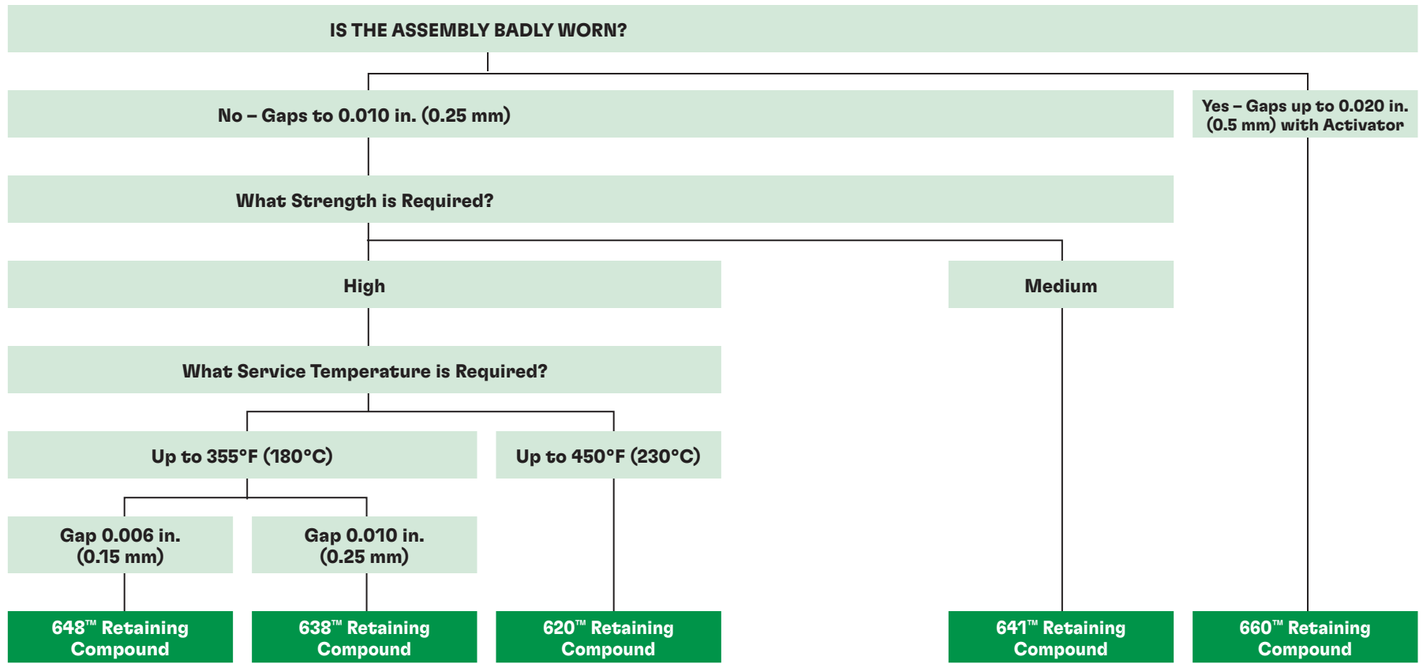
* Bonded Interference takes advantage of wider tolerances and relaxed surface roughness.

Retaining Compounds



Your Application

- Increase the shear strength of cylindrical, non-threaded assemblies
- An industry standard for assembling press- and slip-fitted parts
- Fill the "inner space" between components and cure to form a strong precision assembly
- Formulated in a variety of viscosities, gap fills, flexibility and strength characteristics
- Can be applied with automated process equipment or dispensed manually



Solution

	648™ Retaining Compound	638™ Retaining Compound	620™ Retaining Compound	641™ Retaining Compound	660™ Retaining Compound
Strength Required	High	High	High	Medium	High
Shear Strength	3,900 psi	4,500 psi	3,800 psi	1,700 psi	3,335 psi
Clearance	Up to 0.006 in. (0.15 mm)	Up to 0.010 in. (0.25 mm)	Up to 0.015 in. (0.38 mm)	Up to 0.008 in. (0.2 mm)	Up to 0.020 in. (0.50 mm)
Temperature Resistance	355°F (180°C)	355°F (180°C)	450°F (230°C)	300°F (150°C)	300°F (150°C)
Cure Time (Setup/Full Strength)	3 min. / 24 hrs.	4 min. / 24 hrs.	60 min. / 24 hrs.	20 min. / 24 hrs.	20 min. / 24 hrs.
Recommended Activator	Not Required	Not Required	7088™, 7649™, 7471™	7088™, 7649™, 7471™	7088™, 7649™, 7471™

Product Description

LOCTITE® 648™ Retaining Compound

General Purpose/High Strength/Rapid Cure

Best performance for clearance or interference fit parts. Excellent performance for dynamic, axial and radial loads. Bonds through contaminants including oils, cutting and corrosion protection fluids. Cures on metals without an activator. Globally available product.
NSF/ANSI 61-Certified.

IDH	Package Size
1835922	10 ml bottle
1835920	50 ml bottle
1835918	250 ml bottle
1835917	1 liter bottle

LOCTITE® 638™ Retaining Compound

Slip Fit/High Strength

Recommended for slip fit parts with larger gaps. Excellent performance for dynamic, axial and radial loads. Bonds through contaminants including oils, cutting and corrosion protection fluids. Cures on metals without an activator. Globally available product.
NSF P1-Certified.

IDH	Package Size
1835937	10 ml bottle
1835936	50 ml bottle
1835925	250 ml bottle
1835924	1 liter bottle

LOCTITE® 620™ Retaining Compound

Slip Fit/High Temperature

Recommended for high temperature retaining of parts with a clearance or interference fit, i.e., retaining bushings, bearings, seals, fans and liners. Requires heat cure to achieve temperature resistance.
ABS Approved.

IDH	Package Size
234772	10 ml bottle
135514	50 ml bottle
135515	250 ml bottle
234787	1 liter bottle

LOCTITE® 641™ Retaining Compound

A controlled-strength retaining compound that is ideal for cylindrical parts that require disassembly.
CFIA Approved.

IDH	Package Size
233546	10 ml bottle
231121	50 ml bottle

LOCTITE® 660™ Retaining Compound

Used for repairing worn coaxial parts without remachining; enables reuse of worn bearing seats, keys, splines, tapers, or for retaining shims.
CFIA Approved.

IDH	Package Size
209765	6 ml tube
135527	50 ml tube

GET THE MOST FROM LOCTITE® RETAINING COMPOUNDS

From single repairs to daily production line use, these guidelines will help you maximize the benefits of using LOCTITE® Retaining Compounds:

Surface Cleanliness: Optimal performance is achieved when parts are clean and free of grease, oil, rust preventative or other contaminants. LOCTITE® SF 7070™ ODC-Free Cleaner & Degreaser is one of the recommended cleaners that will effectively remove contaminants without leaving a residue. LOCTITE® Retaining Compounds 638™, 648™ and 680™ are oil tolerant. They are robust enough to bond through contaminants including oils, and cutting and corrosion protecting fluids.

Cure Process: LOCTITE® Retaining Compounds have an anaerobic cure system. Anaerobic means it cures in the absence of air and in the presence of metal ions. This is why the resin remains liquid until it is confined between metal parts. Cure speed is usually faster on active metals than inactive metals because active have more metal ions.

Activators accelerate cure time. Activators are often used to assemble inactive metal parts, cold parts or for large gaps. LOCTITE® 648™, 638™ and 680™ are primerless, meaning they cure rapidly without activators for most applications.

INACTIVE METALS (PRIMERS RECOMMENDED)	
PLATED PARTS	SILVER
ANODIZED ALUMINUM (ALODINE®, IRIDITE™)	GOLD
TITANIUM	ZINC
STAINLESS STEEL	PURE ALUMINUM†
GALVANIZED STEEL	CADMIUM
MAGNETITE STEEL	MAGNESIUM
INCONEL™	NATURAL OR CHEMICAL BLACK OXIDE
NICKEL	
ACTIVE METALS (PRIMERS OPTIONAL)	
IRON	BRONZE
PLAIN STEEL	MANGANESE
COPPER	MONEL™
BRASS	KOVAR™

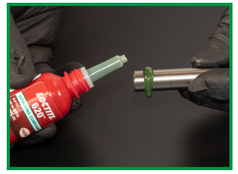
Application Process: Use an application method that ensures the bond-line is filled. Excess material should be avoided because it could migrate. Several proven methods to control the amount applied, ranging from manual to automated:

- Roll bearing on a synthetic sponge saturated with LOCTITE® Retaining Compound to apply a consistent thin film.
- Manually apply LOCTITE® Retaining Compound with a LOCTITE® Hand Pump. Each squeeze of the trigger dispenses a metered amount of adhesive to the parts prior to assembly.
- Use the LOCTITE® Semiautomatic applicator to dispense a metered amount of adhesive to a predefined dispoint point.
- Use the LOCTITE® RotoSpray™ applicator to automatically dispense a precise band of adhesive to the bore of a circular component.

The LOCTITE® RotoSpray™ applicator automatically dispenses a perfect bead of retaining compound within the bore of circular components.

† Pure aluminum is an inactive metal. Alloys of aluminum containing copper are considered active metals.

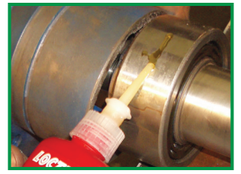
Retaining Compounds



LOCTITE® Retaining Compound Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE & SIZE	TYPICAL USE	COLOR	MAXIMUM GAP FILL (DIAMETER-INCHES)	VISCOSITY (cP)	SHEAR STRENGTH STEEL/STEEL* (psi)	TEMPERATURE RANGE	CURE SPEED*	RECOMMENDED PRIMER	AGENCY APPROVALS
CLOSE-FITTING PARTS	603™	231097 231099 231101	10 ml bottle 50 ml bottle 250 ml bottle	For close-fitting parts with light contamination	Green	0.005 in.	125	3,770	-65°F to 300°F (-54°C to 149°C)	Fixture – 10 min. Full – 24 hrs.	SF 7088™, SF 7471™ or SF 7649™	N/A
	609™	234667 135511 135512 135513 209763	0.5 ml tube 10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	Augments press fit parts	Green	0.006 in. (0.15 mm)	125	2,300 (minimum)	-65°F to 300°F (-54°C to 150°C)	Fixture – 10 min. Full – 24 hrs.	SF 7088™, SF 7471™ or SF 7649™	MIL-R-46082B for existing designs, ASTM D-5363**, CFIA
	648™	1835922 1835920 1835918 1835917	10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	High strength, primerless, oil tolerant, general purpose	Green	0.006 in. (0.15 mm)	500	3,900	-65°F to 355°F (-54°C to 180°C)	Fixture – 3 min. Full – 24 hrs.	Not required	NSF/ANSI 61, CFIA
LOOSE-FITTING PARTS	638™	1835937 1835936 1835925 1835924	10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	High strength, primerless, oil tolerant, for slip-fitted parts	Green	0.010 in. (0.25 mm)	2,500	4,500	-65°F to 355°F (-54°C to 180°C)	Fixture – 4 min. Full – 24 hrs.	Not required	NSF P1, CFIA
	680™	1835212 1835205 1835201 1835196 1835206	0.5 ml tube 10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	High strength, primerless, oil tolerant, for slip-fitted parts	Green	0.015 in. 0.38 mm	1,250	4,000	-65°F to 355°F (-54°C to 180°C)	Fixture – 4 min. Full – 24 hrs.	Not required	NSF/ANSI 61, ABS, CFIA
HIGH TEMPERATURE	620™	234772 135514 135515 234787	10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	For high temperature applications	Green	0.015 in. 0.38 mm	8,500	3,800	-65°F to 450°F (-54°C to 230°C)	Fixture – 1 hr. Full – 24 hrs.	SF 7088™, SF 7471™ or SF 7649™	CFIA, ABS
MEDIUM STRENGTH	641™	233546 231121	10 ml bottle 50 ml bottle	Medium strength for easier disassembly	Yellow	0.008 in. 0.2 mm	525/1,950 Thixotropic	1,700	-65°F to 300°F (-54°C to 150°C)	Fixture – 20 min. Full – 24 hrs.	SF 7088™, SF 7471™ or SF 7649™	CFIA
MACHINERY REPAIR	660™	209765 135527	6 ml tube 50 ml tube	For repair of worn machinery parts	Silver	0.020 in. 0.5 mm	250,000/ 1,500,000 Thixotropic	3,335	-65°F to 300°F (-54°C to 150°C)	Fixture – 20 min. Full – 24 hrs.	SF 7088™, SF 7471™ or SF 7649™	CFIA
	640™	135520 135521 209764	50 ml bottle 250 ml bottle 1 liter bottle	Slow cure for long assembly time	Green	0.004 in. 0.1 mm	600	3,200	-65°F to 350°F (-54°C to 175°C)	Fixture – 1 hr. Full – 24 hrs.	SF 7471™ or SF 7649™	Mil-R-46082B, ASTM D-5363
	661™	234921 234925	250 ml bottle 1 liter bottle	UV light cures exposed adhesive	Yellow	0.006 in. 0.15 mm	500	2,175	-65°F to 350°F (-54°C to 175°C)	Fixture – 4 min. Full – 24 hrs.	SF 7471™ or SF 7649™	N/A
MIL SPEC VERSION OF 680™	635™	135516 135517	50 ml bottle 250 ml bottle	Slip Fits	Green	0.010 in.	2,000	4,500	-65°F to 300°F (-54°C to 149°C)	Fixture – 1 hr. Full – 24 hrs.	SF 7649™ or SF 7471™	MIL-R-46082B for existing designs, ASTM D5363
MIL SPEC VERSION OF 609™	675™	135533	250 ml bottle	Press Fits	Green	0.005 in.	125	3,000	-65°F to 300°F (-54°C to 149°C)	Fixture – 20 min. Full – 24 hrs.	SF 7649™ or SF 7471™	MIL-R-46082B for existing designs, ASTM D-5363
HIGH STRENGTH	540™	88545	250 ml bottle	For sealing core plugs and many other high strength sealing	Blue	0.005 in.	N/A	N/A	-65°F to 300°F (-54°C to 149°C)	1 hr.	SF 7471™	N/A
	668	640470	19 g stick	High strength retaining compound in stick form; withstands up to 400°F temperatures	Green	0.005 in.	N/A	N/A	-65°F to 300°F (-54°C to 204°C)	3 hrs	SF 7471™ or SF 7649™	N/A

* Varies with substrates.
** For new designs.



LOCTITE® Activators Chart

	LOCTITE® PRODUCT	IDH	PACKAGE TYPE & SIZE	COLOR	VISCOSITY (cP)	BASE	ON-PART LIFE	DRY TIME	APPLICATION	AGENCY APPROVALS
ACTIVATORS	SF 7088™ PRIMER	1069258	17 g stick	Teal	Semisolid	No solvent	30 days	None	Anaerobics	CFIA Listed
	SF 7090™ ACTIVATOR	135287 88068	1 fl. oz. bottle 1 liter bottle	Dark Blue	17.5	No solvent	1 hour	None	Anaerobics	N/A
	SF 7471™ PRIMER	135285 135337 229932	1.75 fl. oz. bottle 4.5 oz. net wt. aerosol can 1 gallon can	Amber	2	Acetone/ Isopropanol	7 days	30 to 70 seconds	Anaerobics	MIL-S-22473E for existing designs, ASTM D-5363 for new designs, CFIA Listed
	SF 7649™ PRIMER	135286 231020 209715 135284	1.75 fl. oz. glass bottle 25 g net wt. aerosol can 4.5 oz. net wt. aerosol can 1 gallon can	Clear/ Green	2	Acetone	30 days	30 to 70 seconds	Anaerobics	MIL-S-22473E for existing designs, ASTM D-5363 for new designs, NSF/ANSI 61, NSF P1, CFIA Listed

LOCTITE® Cleaner & Degreaser Chart

LOCTITE® PRODUCT	IDH	PACKAGE TYPE & SIZE	DRYING TIME	RESIDUE/TINSABILITY	ODOR	AGENCY APPROVALS
SF 7070™ ODC-FREE CLEANER & DEGREASER	231562	15 oz. net wt. aerosol	Equivalent to the evaporation rate of water. Wiping or blowers will accelerate dry time.	No rinse and no residue	Mild Citrus	NSF K1

Surface Cleaning

105	Surface Preparation
106	Cleaners & Degreasers

WHY USE LOCTITE® SURFACE PREPARATION PRODUCTS?

LOCTITE® Surface Preparation products are available in both aqueous and solvent formulations. They are engineered to ensure superior cleaning and maximize performance of LOCTITE® adhesives and sealants.

WHAT CONSIDERATIONS ARE IMPORTANT WHEN CHOOSING A SURFACE PREPARATION PRODUCT?

- Cleaners and Degreasers: The major factors to consider are dry time, residue, odor and substrate compatibility.
- Accelerators: Used to increase cure speed and gap filling capabilities of cyanoacrylate adhesives.
- Activators: Specifically engineered curing agents for structural adhesives.
- LOCTITE® Primers: Used to ensure cure on inactive surfaces and speed the cure of machinery adhesives.

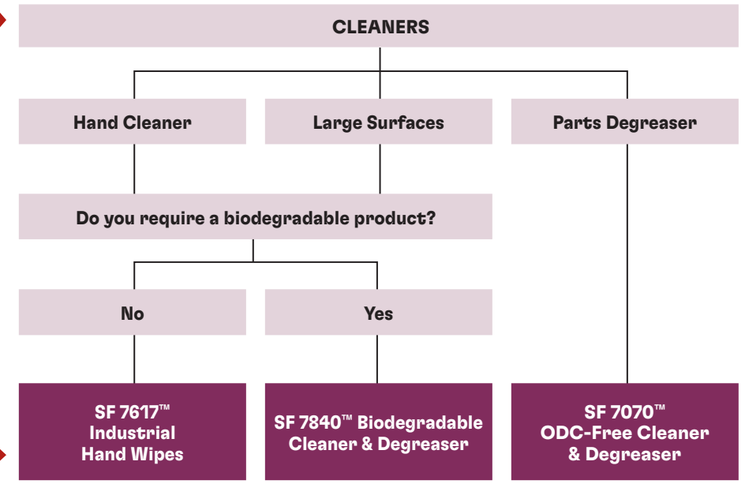
KEY BENEFITS OF USING LOCTITE® SURFACE PREPARATION PRODUCTS:

- Clean and degrease work surfaces, parts and hands
- Increase cure speed
- Increase gap fill
- Ensure full cure on inactive surfaces
- Available in ozone safe (non-chlorofluorocarbons), solvent-based and solventless formulations

Cleaners & Degreasers

Your Application

- Cleaners and degreasers include both aqueous and solvent-based products
- All are free of Class I ozone-depleting chemicals (ODCs)



Solution

	SF 7617™ Industrial Hand Wipes	SF 7840™ Biodegradable Cleaner & Degreaser	SF 7070™ ODC-Free Cleaner & Degreaser
KB Values*	N/A	N/A	31

Product Description

LOCTITE® SF 7617™ Industrial Hand Wipes

Premoistened with a powerful citrus-scented cleaning formula that is abrasive enough to scrub off the toughest grease and grime. Quick and easy-to-use, these 9.5 in. x 12 in. towels eliminate rinsing and drying and leave no residue behind. Perfect for industrial and commercial environments in the painting, printing, maintenance, transportation and construction industries.

IDH	Package Size
337637	75 count canister
337638	130 count bucket

LOCTITE® SF 7840™ Biodegradable Cleaner & Degreaser

Biodegradable, all-purpose, industrial strength, concentrated cleaner and degreaser. Can be economically diluted with water. Formulated for wipe down, pressure spraying and immersion cleaning processes at room temperature or heated. Nonflammable and nontoxic. Contains no ODCs. Available in cherry scented or unscented formulas.

CFIA Listed.

IDH	Package Size
2046049	24 fl. oz. spray bottle
2046047	1 gallon bottle
2046048	5 gallon pail
2046043	55 gallon drum

LOCTITE® SF 7070™ ODC-Free Cleaner & Degreaser

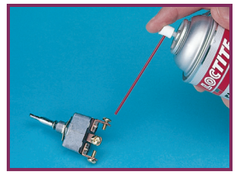
A non-aqueous, hydrocarbon-based solvent designed for cleaning and degreasing surfaces to be bonded with adhesives, as well as for general-purpose industrial cleaning. Safe on aluminum, rubber and most plastics, and will not cause flash rusting on water-sensitive parts. Dries residue-free. Contains no ozone-depleting chemicals (ODCs). (Formerly referenced as 7070™.)

NSF K1 Approved.

IDH	Package Size
231562	15 oz. net wt. aerosol
20172	16 fl. oz. pump spray

* Kauri-Butanol Value tested to ASTM D 1133. (This test method covers the determination of the relative solvent power of hydrocarbon solvents.)

Cleaners & Degreasers

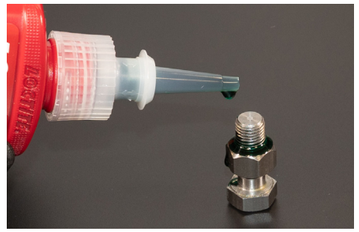


LOCTITE® Cleaner & Degreaser Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE & SIZE	DRYING TIME	RESIDUE/ RINSABILITY	ODOR	AGENCY APPROVALS
GLASS CLEANER / HAND WIPES	SF 7840™ BIODEGRADABLE CLEANER & DEGREASER	2046049 2046047 2046048 2046043	24 fl. oz. spray bottle 1 gallon bottle 5 gallon pail 55 gallon drum	Equivalent to the evaporation rate of water. Wiping or blowers will accelerate dry time.	Rinses residue-free with water	Cherry Scent	CFIA Listed
	SF 7070™ ODC-FREE CLEANER & DEGREASER	231562	15 oz. net wt. aerosol	Equivalent to the evaporation rate of water. Wiping or blowers will accelerate dry time.	No rinse and no residue	Mild Citrus	NSF K1
	SF 7617™ INDUSTRIAL HAND WIPES	337637 337638	75 count canister 130 count bucket	1 to 5 minutes	No rinse and no residue	Powerful Citrus	N/A
	SF 768™ CLEANUP SOLVENT	235018 135542	1.75 fl. oz. bottle 1 gallon can	<30 seconds	No rinse and no residue	Solvent	N/A
	TEROSON® SB 450™	2458313	1 liter bottle	10 minutes	No rinse and no residue	Mild Solvent	N/A

LOCTITE® Cleaner & Degreaser Applications Chart

	LOCTITE® PRODUCT	FUNCTION	APPLICATION
GLASS CLEANER / HAND WIPES	SF 7840™ BIODEGRADABLE CLEANER & DEGREASER	Removes grease, grime, oil, soot, cutting fluids, mildew, stains, light carbon, animal fat, polishing compounds and ink.	Cleans engine parts, ovens, exhaust hoods, drilling rigs. Can be diluted for general wipe-down cleaning. Formulated for pressure spraying and immersion cleaning processes, at room temperature or heated.
	SF 7617™ INDUSTRIAL HAND WIPES	Removes grease, grime, oil, soot, paints and ink.	Removes grease, grime, oil, soot, paints and ink from surfaces. Removes grease and grime from hands.
	SF 768™ CLEAN UP SOLVENT	Dissolves cured cyanoacrylate-based adhesives.	Disassembly of parts and cleanup of dispensing equipment.
	SF 137DA™ PRO STRENGTH VARNISH REMOVER	Dissolves and cleans residue deposited during normal operation of gasoline engine powered equipment.	Carburetors, chokes, linkages, heat risers, PCV valves, metal parts, industrial equipment.
	TEROSON® SB 450™	Cleans and improves adhesion on difficult-to-bond surfaces.	Metals, plastics, and coated surfaces.



109	Threadlocking
111	Threadlockers

WHY USE A LOCTITE® THREADLOCKER?

LOCTITE® threadlockers are vastly superior to mechanical locking devices for the assembly of threaded fasteners. The anaerobic liquid is applied drop-wise to the threads of a fastener and cures to a hard thermoset plastic that locks the threads together. This prevents unwanted movement, loosening, leaks and/or corrosion. To further enhance their performance, anaerobic formulations have been developed for applications with high temperatures, oil contamination and less active surfaces.

LOCTITE® threadlockers have historically been formulated as liquids due to their reactivity; in liquid form they remain stable and ready for use. Recent breakthroughs have led to the development of stable, semisolid stick formulations. This has opened the door to applications where the liquids were considered too messy or inconvenient. The new semisolid formulations allow direct contact of the anaerobic product to the part – the product is placed exactly where it is needed, and it stays in place as the threaded part is positioned and assembled.

LOCTITE® THREADLOCKERS ARE MUCH SUPERIOR TO TRADITIONAL MECHANICAL LOCKING METHODS:

- Mechanical devices such as split pins, tab washers: These are only used to prevent the loss of nuts and bolts.
- Friction devices: They add to absolute elasticity and/or increase friction but will not ensure permanent threadlocking under dynamic loads.
- Locking devices, like tooth flanged and ribbed flanged bolts, nuts and washers: They prevent self-loosening but are expensive and need larger flange-bearing surfaces. They may damage the surfaces.

LOCTITE® Threadlockers are single-component liquid and semisolid adhesives. They cure at room temperature to a hard solid thermoset plastic when applied between steel, aluminum, brass and most other metal surfaces. They cure in the absence of air. The adhesive completely fills the gaps between mating threads to lock threads and joints.

ADVANTAGES OF LOCTITE® THREADLOCKERS AS COMPARED TO TRADITIONAL MECHANICAL LOCKING DEVICES:

- Prevent unwanted movement, loosening, leaks, and corrosion
- Resist vibration
- Single-component – clean and easy to apply
- Can be used on all sizes of fasteners – reduces inventory costs
- Seal threads – allow through-hole tapping

IS THERE A THREADLOCKER FOR HIGH-TEMPERATURE APPLICATIONS?

Yes, Henkel has threadlockers for applications below 300°F (150°C) and between 300°F (150°C) to 650°F (343°C). One example is LOCTITE® 2422™, a medium strength product for temperatures up to 650°F (343°C). Other high-temperature products can be found in the Properties Chart.

ARE THERE PRODUCTS THAT WORK WELL ON OILY PARTS?

There are several LOCTITE® products with oil-cutting capabilities. These include LOCTITE® 243™, 248™, 263™ and 268™ threadlockers. Use the Properties Chart to choose the one that is right for your application.

WHAT DO I DO WHEN I HAVE A BLIND HOLE APPLICATION?

The application method for blind hole assemblies requires that the product be applied to both parts. If the product is applied to the fastener only, air pressure will force the liquid threadlocker to escape as you torque down.

DO YOU HAVE A PRODUCT FOR INACTIVE METALS?

LOCTITE® 243™ and 263™ threadlockers enable the assembly of inactive metals without the need to use a primer. These products are ideal for use on metals such as stainless steel, zinc, magnesium, black oxide, cadmium, anodized aluminum, passivated titanium and others.

HOW MUCH TIME IS NEEDED FOR FULL CURE?

Most anaerobic adhesives attain full cure in around 24 hours but will fixture in less time. For cure speed of the various products, refer to the Properties Chart or to the Technical Data Sheets (TDS).

CAN I USE THREADLOCKERS ON PLASTIC THREADS?

For plastic fasteners, only use LOCTITE® 425™ Instant Adhesive, a surface curing threadlocker.

WHEN SHOULD I USE A PRIMER?

Primers help speed the curing process for faster return to service. For this reason, they can be used in any application but are most often used on less active metal surfaces. If the threadlocker will be applied below 40°F, pretreat parts with LOCTITE® SF 7649™ Primer. Alternatively, the use of LOCTITE® 243™ and 263™ primerless products provides a fast cure on inactive surfaces.

***The Source* ANSWERS YOUR QUESTIONS**

CHOOSING THE RIGHT THREADLOCKER FOR YOUR APPLICATION

How do I decide which threadlocker to use?

LOCTITE® threadlockers are available in many grades to satisfy a wide range of applications. To make grade selection easy, the grades are color-coded to help you identify one threadlocker from the other.

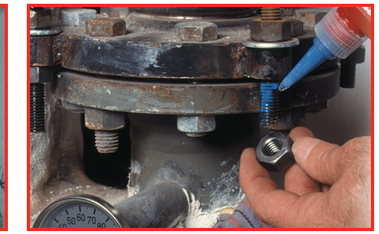
LOW STRENGTH – Purple color, removable with hand tools, good for adjustment screws, calibration screws, meters and gauges, and for fasteners up to ¼ in. in diameter.

HIGH STRENGTH – Red color, for permanent assemblies, heavy equipment, suspension bolts, motor and pump mounts, bearing cap bolts and studs.

MEDIUM STRENGTH – Blue color, removable with hand tools, good for machine tools and presses, pumps and compressors, mounting bolts, gearboxes, and for fasteners over ¼ in. in diameter. Available in liquid, tape and stick formats.

WICKING – Green color, removable with heat and hand tools, for preassembled fasteners, instrumentation screws, electrical connectors, carburetors and fasteners.

Threadlockers



Your Application

- Prevent loosening from shock and vibration
- Single component – clean and easy to apply
- Can be used on various sizes of fasteners – reduces inventory costs
- Seal threads
- Stop rust and corrosion
- Available in a variety of viscosities and strengths for virtually any application

ARE THE PARTS ALREADY ASSEMBLED?

- **No** → **What strength do you require?**
  - **Low – Purple** → 222MS™
  - **Medium – Blue (Disassemble with hand tools)** → 243™, 248™, 249™ Threadlocker Tape
  - **High – Red (Disassemble with heat)** → 263™, 268™
- **Yes** → **Wicking Grade** → **Medium/High – Green** → 290™

Solution

	222MS™	243™	248™	249™ Threadlocker Tape	263™	268™	290™
Chemistry	Liquid Anaerobic	Liquid Anaerobic	Semisolid Anaerobic	Tape Anaerobic	Liquid Anaerobic	Semisolid Anaerobic	Liquid Anaerobic
Color	Purple	Blue	Blue	Blue	Red	Red	Green
Viscosity (cP)	1,200/5,000 Thixotropic	1,300/3,000 Thixotropic	Semisolid	Tape	400/600 Thixotropic	Semisolid	25/55
Torque (in.-lbs.) (Break/Prevail)	53/30	230/40	226/36	74/47	290/290	311/83	90/260
Fixture Time	10 min.	10 min.	5 min.	30 min.	10 min.	5 min.	20 min.
Cure Time (Hours)	24 hrs.	24 hrs.	24 hrs.	24 hrs.	24 hrs.	24 hrs.	24 hrs.
Temperature Resistance	300°F	360°F	300°F	300°F	-65°F to 360°F	-65°F to 300°F	-65°F to 300°F
Recommended Primer	SF 7088™, SF 7649™, SF 7471™	Not Required	SF 7088™, SF 7649™, SF 7471™	SF 7088™, SF 7649™, SF 7471™	Not Required	SF 7088™, SF 7649™, SF 7471™	SF 7088™, SF 7649™, SF 7471™

Product Description

LOCTITE® 222MS™ Threadlocker

Low Strength/ Small Screw

Recommended for low strength threadlocking of adjustment screws, countersunk head screws, and set screws; on collars, pulleys, tool holders and controllers. Also for low strength metals such as aluminum or brass.
Mil-Spec (S-46163A) Type II, Grade M. NSF P1 Certified.

IDH	Package Size
231483	0.5 ml tube
135333	10 ml bottle
135334	50 ml bottle
135335	250 ml bottle

LOCTITE® 243™ Blue Threadlocker

Medium Strength/ Primerless

Versatile, medium strength liquid threadlocker. Reliably locks and seals metal fasteners up to 3/4 in. Engineered to cure consistently on a variety of metals including stainless steel and most plated fasteners. Tolerates minor surface contaminants, anti-corrosion and protection fluids. Rated for 360°F (180°C). Removable with hand tools.

IDH	Package Size
1330255	0.5 ml capsule
1329837	10 ml bottle
1329467	50 ml bottle
1329505	250 ml bottle
1330333	1 liter bottle

LOCTITE® 248™ Blue Threadlocker

Semisolid/Medium Strength/Primerless

Semisolid stick form is convenient, portable and great for hard-to-reach applications. Engineered to cure consistently on a variety of metals including stainless steel and most plated fasteners. Tolerates minor surface contaminants, anti-corrosion and protection fluids. Removable with hand tools.

IDH	Package Size
826034	9 g stick
462476	19 g stick

LOCTITE® 249™ Blue Threadlocker Tape

Tape/Medium Strength

The one and only threadlocker in a tape form. This revolutionary product offers the same reliability and performance as Loctite® removable grade threadlocking liquids. Convenient, durable package is a must for every toolbox. It is easy to apply and can be preapplied for future assembly.
CFIA Listed.

IDH	Package Size
1372603	260 in. roll

LOCTITE® 263™ Red Threadlocker

High Strength/ Primerless

Versatile, high strength liquid threadlocker. Reliably locks and seals metal fasteners up to 1 in. Engineered to cure consistently on a variety of metals including stainless steel and most plated fasteners. Tolerates minor surface contaminants, anti-corrosion and protection fluids. Rated for 360°F (180°C). Heat required for removal.

IDH	Package Size
1330582	0.5 ml capsule
1330583	10 ml bottle
1330585	50 ml bottle
1330335	250 ml bottle
1330334	1 liter bottle

LOCTITE® 268™ Threadlocker

Semisolid/High Strength/ Primerless

Semisolid stick form is convenient, portable and great for hard-to-reach applications. Engineered to cure consistently on a variety of metals including stainless steel and most plated fasteners. Tolerates minor surface contaminants, anti-corrosion and protection fluids. Rated to 300°F (180°C). Heat required for removal.

IDH	Package Size
826036	9 g stick
826035	19 g stick

LOCTITE® 290™ Threadlocker

Wicking Grade/High Strength

Recommended for locking preassembled fasteners, i.e., instrumentation screws, electrical connectors and set screws. Also seals porosities in welds and metal parts.
Mil Spec (S-46163A) Type III, Grade R. NSF/ANSI 61 Certified.

IDH	Package Size
233731	10 ml bottle
135392	50 ml bottle
135393	250 ml bottle
209745	1 liter bottle

HELPFUL HINTS

WHEN SHOULD A LOCTITE® PRIMER BE USED?

LOCTITE® anaerobic threadlockers cure (1) in the absence of air, and (2) in the presence of metal ions. When assembling inactive metal parts – which are low in metal ions – use of a LOCTITE® Primer is strongly recommended to ensure proper performance.

INACTIVE METALS (PRIMERS RECOMMENDED)		ACTIVE METALS (PRIMERS OPTIONAL)
PLATED PARTS	SILVER	IRON
ANODIZED ALUMINUM (ALODINE®, IRIDITE™)	GOLD	PLAIN STEEL
TITANIUM	ZINC	COPPER
STAINLESS STEEL	PURE ALUMINUM†	BRASS
GALVANIZED STEEL	CADMIUM	BRONZE
MAGNETITE STEEL	MAGNESIUM	MANGANESE
INCONEL™	NATURAL OR CHEMICAL BLACK OXIDE	MONEL™
NICKEL		KOVAR™

Primers also help speed up cure rates. Fixture time can be reduced from several hours to minutes, allowing faster assembly and production throughput.

LOCTITE® primers are also recommended when assembling metal parts that are cold, have large gaps or deep threads.

NOTE: Using a primer will decrease ultimate bond strength.

THREADLOCKING PREP STEPS

- Clean parts with LOCTITE® SF 7070™ ODC-Free Cleaner & Degreaser before applying threadlocker.
- If the parts were in contact with aqueous washing solutions or cutting fluids, which leave a protective layer on the surface, wash with hot water before use.
- If the threadlocker will be applied below 40°F, pretreat parts with LOCTITE® SF 7649™ Primer.

† Pure aluminum is an inactive metal. Alloys of aluminum containing copper are considered active metals.

Threadlockers

LOCTITE® General-Purpose Threadlocker Properties Chart

KEY FACTORS		KEY FEATURES	TYPICAL USE	PRODUCT	IDH NUMBER	PACKAGE TYPE & SIZE	COLOR	VISCOSITY† (cP)	TORQUE‡ IN.-LBS. (BREAK/ PREVAIL)	TEMP. RANGE	CURE SPEED (STEEL @ 25°C)	AGENCY APPROVALS
GENERAL-PURPOSE THREADLOCKERS	Low Strength	Small Fasteners	Small screws under 1/4"	222™	231125 231127	10 ml bottle 50 ml bottle	Purple	1,200 / 5,000 Thixotropic	53 / 30	-65°F to 300°F	Fixture – 20 min. Full – 24 hrs.	N/A
	Medium Strength	General-Purpose	1/4" to 3/4" bolts, primerless, tolerates surface contaminates	243™	1330255 1329837 1329467 1329505 1330333	0.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	Blue	1,300 / 3,000 Thixotropic	230 / 40	-65°F to 360°F	Fixture – 10 min. Full – 24 hrs.	NSF/ANSI 61, CFIA Listed
		Semisolid Stick	1/4" to 3/4" bolts, overhead, hard-to-reach areas	248™	826034 462476	9 g stick 19 g stick	Blue	Semisolid	226* / 36	-65°F to 300°F	Fixture – 5 min. Full – 24 hrs.	CFIA Listed
		Tape	1/4" to 3/4" bolts, overhead, pre-dispensed, hard-to-reach areas	249™ THREADLOCKER TAPE	1372603	260" roll	Blue	Tape	74 / 47	-65°F to 300°F	Fixture – 30 min. Full – 24 hrs.	CFIA Listed
	High Strength	General-Purpose	Primerless, up to 1" bolts, tolerates surface contaminants	263™	1330582 1330583 1330585 1330335 1330334	0.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	Red	400 / 600 Thixotropic	290 / 290*	-65°F to 360°F	Fixture – 10 min. Full – 24 hrs.	NSF/ANSI 61, CFIA Listed
		High Tempera-ture	High strength, high temperature	266™	232329 232331 232327	10 ml bottle 250 ml bottle 1 liter bottle	Red-Orange	3,750 / 9,000 Thixotropic	270 / 75	-65°F to 450°F	Fixture – 10 min. Full – 24 hrs.	N/A
		Semisolid Stick	Up to 3/4" bolts, primerless, overhead, hard-to-reach areas, tolerates surface contaminants	268™	826036 826035	9 g stick 19 g stick	Red	Semisolid	311* / 83	-65°F to 300°F	Fixture – 5 min. Full – 24 hrs.	CFIA Listed
	Wicking Grade	General-Purpose	Medium/ high strength, wicking grade for preassembled parts and weld sealing	290™	233731 135392 135393 209745	10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	Green	25 / 55	90 / 260	-65°F to 300°F	Fixture – 20 min. Full – 24 hrs.	MIL-S-46163A for existing designs, ASTM D-5363**, NSF/ANSI 61, NSF P1, CFIA Listed
		High strength	Wicking grade for preassembled parts	294™	232774 232782	50 ml bottle 1 liter bottle	Green	20 / 45	289 / 237	-65°F to 450°F	Fixture – 4 min. Full – 24 hrs.	N/A

LOCTITE® Specialty Threadlocker Properties Chart

KEY FACTORS		KEY FEATURES	TYPICAL USE	PRODUCT	IDH NUMBER	PACKAGE TYPE & SIZE	COLOR	VISCOSITY† (cP)	TORQUE‡ IN.-LBS. (BREAK/PREVAIL)	TEMP. RANGE	CURE SPEED (STEEL @ 25°C)	AGENCY APPROVALS
SPECIALTY THREADLOCKERS	Medium Strength	High Temperature	High temperature, medium strength	246™	196508 234172 234174	10 ml bottle 50 ml bottle 250 ml bottle	Blue	2,600	170 / 48*	-65°F to 450°F	Fixture – 5 min. Full – 24 hrs.	N/A
		Ultra High Temperature	Ultra high temperature, medium strength for 1/2" to 3/4" bolts	2422™	1134601 2946244	30 ml syringe 300 g Cartridge	Blue	Paste	102 / 12	-65°F to 650°F	Fixture – 30 min. Full – 24 hrs.	N/A
		Low Halogen/ Low Sulfur	For use in nuclear facilities	2432™	219481	50 ml bottle	Blue	300	150 / 53 (black oxide steel nuts and bolts)	-65°F to 300°F	Fixture – 30 min. Full – 24 hrs.	N/A
	High Strength	General Purpose	Primerless, high strength	2760™	303441 303440 303442	10 ml bottle 50 ml bottle 250 ml bottle	Blue	3,070 Thixotropic	160 / 20	-65°F to 300°F	Fixture – 5 min. Full – 24 hrs.	N/A

* Break loose value.
** For new designs.
† Brookfield RVT spindle 3.20 RPM/25 RPM.
‡ M10 steel nuts and bolts.

PLEASE NOTE: A complete line of surface primers is available. Refer to the Surface Cleaning section, 129-132.

LOCTITE® Specialty Threadlocker Properties Chart

KEY FACTORS		KEY FEATURES	TYPICAL USE	PRODUCT	IDH NUMBER	PACKAGE TYPE & SIZE	COLOR	VISCOSITY† (cP)	TORQUE‡ IN.-LBS. (BREAK/PREVAIL)	TEMP. RANGE	CURE SPEED (STEEL @ 25°C)	AGENCY APPROVALS
SPECIALTY THREADLOCKERS	High Strength	High Temperature	High temperature applications	272™	88442 195542 232550	50 ml bottle 250 ml bottle 1 liter bottle	Red	9,500	200 / 220	-65°F to 450°F	Fixture – 1 hr. Full – 24 hrs.	CFIA Listed
		Ultra High Temperature	Ultra high temperature, high strength for 1/2" to 3/4" bolts	2620™	1138282	30 g syringe	Red	Paste	161 / 10	-65°F to 650°F	Fixture – 30 min. Full – 24 hrs.	CFIA Listed
		High Lubricity (Large Bolts)	Large bolts >7/8": High lubricity delivers higher clamp load than 277™	2047™	1134607 1361396	50 ml bottle 1 liter bottle	Black	2,000 / 12,000 Thixotropic	375 / 80	-65°F to 300°F	Fixture – 90 min. Full – 24 hrs.	CFIA Listed
	Plastic	Plastic Fasteners	For small metal and plastic fasteners and tamper-proofing	425™	135461	20 g bottle	Blue	80	4 / 2	-65°F to 180°F	Fixture – 1.5 min. Full – 24 hrs.	N/A

LOCTITE® MIL Spec Threadlocker Properties Chart

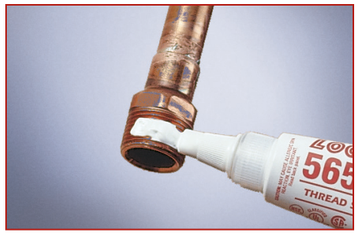
KEY FACTORS		TYPICAL USE	PRODUCT	IDH NUMBER	PACKAGE TYPE & SIZE	COLOR	VISCOSITY† (cP)	TORQUE‡ IN.-LBS. (BREAK/PREVAIL)	TEMP. RANGE	CURE SPEED (STEEL @ 25°C)	AGENCY APPROVALS
MIL SPEC THREADLOCKERS	Low Strength	Easy removal, small screws under 1/4"	222MS™	231483 135333 135334 135335	0.5 ml tube 10 ml bottle 50 ml bottle 250 ml bottle	Purple	1,200 / 5,000 Thixotropic	53 / 30	-65°F to 300°F	Fixture – 10 min. Full – 24 hrs.	MIL-S-46163A for existing designs, ASTM D-5363**, NSF P1, CFIA Listed
	Medium Strength	Removable grade, 1/4" up to 3/4" bolts	242®	230718 135354 135355 135356 209729	0.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	Blue	1,200 / 5,000 Thixotropic	110 / 43	-65°F to 300°F	Fixture – 5 min. Full – 24 hrs.	MIL-S-46163A for existing designs, ASTM D-5363**, NSF/ANSI 61, NSF P1, ABS, CFIA Listed
	High Strength	High strength locking, up to 3/4" bolts	262™	231922 231926 135374 135375 231928	0.5 ml capsule 10 ml tube 50 ml bottle 250 ml bottle 1 liter bottle	Red	1,800 / 5,000 Thixotropic	189 / 275	-65°F to 300°F	Fixture – 10 min. Full – 24 hrs.	MIL-S-46163A for existing designs, ASTM D-5363**, NSF P1, ABS, CFIA Listed
		High strength for fasteners up to 1" diameter	271™	232532 135380 135381 88441 209743	0.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	Red	500	250 / 275	-65°F to 300°F	Fixture – 10 min. Full – 24 hrs.	MIL-S-46163A for existing designs, ASTM D-5363**, UL Classified for U.S., CFIA Listed
		Permanent for large bolts >7/8"	277™	231089 88448 88449 209744	10 ml bottle 50 ml bottle 250 ml bottle 1 liter bottle	Red	7,000	275 / 275	-65°F to 300°F	Fixture – 60 min. Full – 24 hrs.	MIL-S-46163A for existing designs, ASTM D-5363**
	Wicking Grade	Low strength wicking grade for preassembled fasteners under 1/4"	220™	483618 645093 231424	10 ml bottle 50 ml bottle 250 ml bottle	Blue	20	85 / 170	-65°F to 300°F	Fixture – 6 min. Full – 24 hrs.	MIL-S-46163A for existing designs, ASTM D-5363**, CFIA Listed

LOCTITE® Activator Properties Chart

LOCTITE® PRODUCT		IDH	PACKAGE TYPE & SIZE	COLOR	VISCOSITY (cP)	BASE	ON-PART LIFE	DRY TIME	APPLICATION	AGENCY APPROVALS
ACTIVATORS	SF 7088™ PRIMER	1069258	17 g stick	Teal	Semisolid	No solvent	30 days	None	Anaerobics	CFIA Listed
	SF 7090™ ACTIVATOR	135287 88068	1 fl. oz. bottle 1 liter bottle	Dark Blue	17.5	No solvent	1 hour	None	Anaerobics	N/A
	SF 7471™ PRIMER	135285 135337 229932	1.75 fl. oz. glass bottle 4.5 oz. net wt. aerosol can 1 gallon can	Amber	2	Acetone/ Isopropanol	7 days	30 to 70 seconds	Anaerobics	MIL-S-22473E for existing designs, ASTM D-5363 for new designs, CFIA Listed
	SF 7649™ PRIMER	135286 231020 209715 135284	1.75 fl. oz. glass bottle 25 g net wt. aerosol can 4.5 oz. net wt. aerosol can 1 gallon can	Clear/ Green	2	Acetone	30 days	30 to 70 seconds	Anaerobics	MIL-S-22473E for existing designs, ASTM D-5363 for new designs, NSF/ANSI 61, NSF P1, CFIA Listed

** For new designs.
† Brookfield RVT spindle 3.20 RPM/25 RPM.
‡ M10 steel nuts and bolts.

PLEASE NOTE: A complete line of surface primers is available. Refer to the Surface Cleaning section, 129-132.



115	Thread Sealing
117	Thread Sealants

WHY USE A LOCTITE® THREAD SEALANT?

LOCTITE® Thread Sealants prevent leakage of gases and liquids. Designed for low- and high-pressure applications, they fill the space between threaded parts and provide an instant, low-pressure seal. When fully cured, they seal to the burst pressure of most pipe systems.

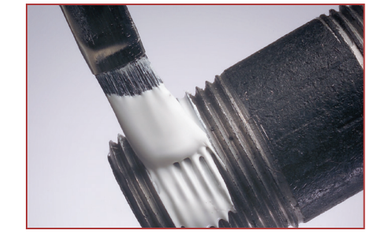
LOCTITE® SEALANTS ARE SUPERIOR TO TRADITIONAL SEALANT TYPES:

- Solvent-based sealing compounds: Shrink during cure as solvents evaporate. Fittings must be re-torqued to minimize voids. They lock the assembly by a combination of friction and deformation.
- PTFE tape: Lubricates in off direction, allowing fittings to loosen under dynamic loads, resulting in loss of clamping force and leakage. Dynamic loads may accelerate creep, causing leakage over time. The lubricating effect of PTFE frequently results in over-tightening of fasteners, adding stress or causing breakage of parts. Application requires good professional skills to avoid stressing fittings or castings.

ADVANTAGES OF LOCTITE® THREAD SEALANTS AS COMPARED TO TRADITIONAL SEALANT TYPES:

- Single-component – clean and easy to apply
- Do not creep, shrink or block systems
- Can be used on any size of pipe fitting
- Replace all types of tape and paste sealants
- The seal resists vibration and shock loads
- Products are available with potable water and gas approvals
- Protect mated threaded areas against corrosion and galling

Thread Sealants



Your Application

- Prevent leaks
- Single component – quick and easy to apply
- Can be used on any size pipe fitting and seal to the burst strength of most piping systems
- Prevent thread corrosion
- Seal and secure metal pipes and fittings, filling the space between threaded metal parts and hardening to prevent leakage
- Designed for high- and low-pressure applications
- Controlled strength for ease of disassembly

Solution

ARE THE PARTS METAL OR PLASTIC?

- **Metal Parts** → **Are you working with hydraulic fittings?**
  - **Yes** → LOCTITE® 545™ Thread Sealant (Hydraulic & Pneumatic)
  - **No** → **Do you prefer a paste or a semisolid?**
    - **Paste** → LOCTITE® 565™ Thread Sealant / LOCTITE® 567™ Thread Sealant
    - **Semisolid** → LOCTITE® 561™ Pipe Sealant with PTFE
- **Plastic** → MR 5438™

	LOCTITE® 545™ Thread Sealant (Hydraulic & Pneumatic)	LOCTITE® 565™ Thread Sealant	LOCTITE® 567™ Thread Sealant	LOCTITE® 561™ Pipe Sealant with PTFE	MR 5438™
Chemistry	Anaerobic	Anaerobic	Anaerobic	Anaerobic	Non-Anaerobic
Color	Purple	White	White	White	White
Viscosity (cP)	14,000	300,000	540,000	Semisolid	90,000 to 110,000
Pressure Resistance (psi)	10,000	10,000	10,000	10,000	5,000
Cure Time (hours)	24 hours	24 hours	24 hours	24 hours	24 hours
Temperature Resistance	-65°F to 300°F	-65°F to 300°F	-65°F to 400°F	-65°F to 300°F	-65°F to 300°F
Recommended Primer	SF 7088™, SF 7649™ or SF 7471™	SF 7088™, SF 7649™ or SF 7471™	SF 7088™, SF 7649™ or SF 7471™	SF 7088™, SF 7649™ or SF 7471™	N/A

Product Description

LOCTITE® 545™ Thread Sealant

Recommended for fine threaded fittings as used in hydraulic and pneumatic installations and small fittings in general.
ABS Approved.
CFIA Listed.

IDH	Package Size
303420	10 ml bottle
135486	50 ml bottle
195662	250 ml bottle

LOCTITE® 565™ Thread Sealant

A general-purpose instant sealant for tapered and straight/tapered fittings.
CSA 3319-81 and 3319-01.
UL MH007(N).
NSF/ANSI 61 Certified.
ULC-Canada Approved.
CFIA Listed.

IDH	Package Size
234438	6 ml tube
88551	50 ml tube

LOCTITE® 567™ Thread Sealant

A general-purpose instant sealant for tapered and straight/tapered fittings. Rated to 400°F.
UL MH007(N).
NSF/ANSI 61 Certified.
ULC-Canada Approved.
CFIA Listed.

IDH	Package Size
2087068	6 ml tube
2087067	50 ml tube
2087069	250 ml tube

LOCTITE® 561™ Pipe Sealant with PTFE

Semisolid stick form is convenient, portable and less messy. Formulated for fast, reliable curing on metal, tapered pipe threads and fittings. Provides high pressure sealing and withstands continuous operating temperatures of -65°F to 300°F (-54°C to 150°C).
NSF/ANSI 61 Certified.

IDH	Package Size
463973	19 g stick

LOCTITE® MR 5438™ White Threaded Plastic Pipe Sealant

Recommended for use on threaded plastic fittings carrying hot or cold water, i.e., industrial and agricultural plastic water pipe systems, or drainage systems.

IDH	Package Size
1537780	16 oz. brush-top can

HELPFUL HINTS

WHEN SHOULD A LOCTITE® PRIMER BE USED?

LOCTITE® anaerobic thread sealants cure (1) in the absence of air, and (2) in the presence of metal ions. When assembling inactive metal parts – which are low in metal ions – use of a LOCTITE® Primer is strongly recommended to ensure proper performance.

INACTIVE METALS (PRIMERS RECOMMENDED)		ACTIVE METALS (PRIMERS OPTIONAL)
PLATED PARTS	SILVER	IRON
ANODIZED ALUMINUM (ALODINE®, IRIDITE™)	GOLD	PLAIN STEEL
TITANIUM	ZINC	COPPER
STAINLESS STEEL	PURE ALUMINUM†	BRASS
GALVANIZED STEEL	CADMIUM	BRONZE
MAGNETITE STEEL	MAGNESIUM	MANGANESE
INCONEL™	NATURAL OR CHEMICAL BLACK OXIDE	MONEL™
NICKEL		KOVAR™

Primers also help speed up cure rates. Fixture time can be reduced from several hours to minutes, allowing faster assembly and production throughput.

LOCTITE® primers are also recommended when assembling metal parts that are cold, have large gaps or deep threads.

NOTE: Using a primer will decrease ultimate bond strength.

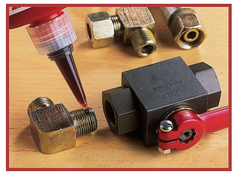
HELPFUL HINTS

THREAD SEALING PREP STEPS

- Clean parts with LOCTITE® SF 7070™ ODC-Free Cleaner & Degreaser before applying thread sealant.
- If the parts were in contact with aqueous washing solutions or cutting fluids, which leave a protective layer on the surface, wash with hot water before use.
- If the thread sealant will be applied below 40°F, pretreat parts with LOCTITE® SF 7649™ Primer.

† Pure aluminum is an inactive metal. Alloys of aluminum containing copper are considered active metals.

Thread Sealants



LOCTITE® Liquid Anaerobic Thread Sealant Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE & SIZE	TYPICAL USE	COLOR & APPEARANCE	VISCOSITY (cP)	TEMPERATURE RANGE	PRESSURE RESISTANCE (psi)	RECOMMENDED PRIMER	AGENCY APPROVALS
GENERAL-PURPOSE	561™	463973	19 g stick	General-purpose, portable, overhead	White Paste	Semisolid	-65°F to 300°F	10,000	SF 7088™, SF 7649™ or SF 7471™	UL Classified for U.S., CFIA Listed, NSF/ANSI 61
	564™	233498 233500	50 ml tube 250 ml tube	Low Strength for Large Diameter Pipe	White	90,500	-65°F to 300°F	10,000	SF 7649™, SF 7471™or SF 7088	N/A
	565™	234438 88551	6 ml tube 50 ml tube	Controlled strength	White	300,000	-65°F to 300°F	10,000	SF 7088™, SF 7649™ or SF 7471™	CSA International, UL Classified for U.S., NSF/ANSI 61, CFIA Listed, ULC Classified for Canada
	572™	231115	50 ml tube	Coarse Threads	White	17,000/50,000 Thixotropic	-65°F to 300°F	10,000	SF 7649™, SF 7471™ or SF 7088™	N/A
	577™	2068749 2068748	50 ml tube 250 ml tube	Medium strength, coarse threads	Yellow	24,000/80,000 Thixotropic	-65°F to 300°F	10,000	SF 7088™, SF 7649™	N/A
	536™	1787978	50 ml tube	High strength for tapered threads	Off-White	High	-65°F to 300°F	10,000	SF 7088™, SF 7649™	N/A
HIGH TEMPERATURE	567™	2087068 2087067 2087069	6 ml tube 50 ml tube 250 ml tube	For stainless steel and all other metal fittings	White	540,000	-65°F to 400°F	10,000	SF 7088™, SF 7649™ or SF 7471™	UL Classified for U.S., ABS, CFIA Listed, NSF/ANSI 61, ULC Classified for Canada
	5770™	1138284	50 ml tube	High temperature	Off-White Paste	Paste	-65°F to 530°F	N/A	SF 7088™, SF 7649™	N/A
	592™	209761 88568	50 ml tube 250 ml tube	Medium strength	White	350,000	-65°F to 400°F	10,000	SF 736™	CFIA Listed
HYDRAULIC & PNEUMATIC	545™	303420 135486 195662	10 ml bottle 50 ml bottle 250 ml bottle	Pneumatic hydraulic sealant, no fillers	Purple	14,000	-65°F to 300°F	10,000	SF 7088™, SF 7649™ or SF 7471™	ABS, CFIA Listed
	542™	237051	50 ml bottle	Fine threads	Brown	525/1,850 Thixotropic	-65°F to 300°F	10,000	SF 7649™, SF 7471™or SF 7088™	N/A
	5452™	1265769 1265770	50 ml tube 250 ml tube	Pneumatic hydraulic sealant, no fillers	Purple	29,000/200,000 Thixotropic	-65°F to 300°F	10,000	SF 7088™, SF 7649™	N/A
	569™	135492 209605	50 ml bottle 250 ml bottle	Original hydraulic sealant	Brown	400	-65°F to 300°F	10,000	SF 7088™, SF 7649™	CFIA Listed
LOW HALOGEN	580™	88565	50 ml tube	Low halogen, low sulfur, PTFE-free	White	600,000	-65°F to 300°F	10,000	N/A	N/A
	5772™	219487	50 ml bottle	Low halogen, low sulfur, medium strength, fast cure	Yellow	7,500	-65°F to 300°F	10,000	N/A	N/A
CHEMICAL RESISTANCE	554™	231643 135489	10 ml bottle 50 ml bottle	Refrigerant sealant, high strength	Red	2,500	-65°F to 300°F	10,000	SF 7088™, SF 7649™ or SF 7471™	CFIA Listed

LOCTITE® Liquid Non-Anaerobic Thread Sealant Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE & SIZE	TYPICAL USE	COLOR AND APPEARANCE	VISCOSITY (cP)	TEMPERATURE RANGE	PRESSURE RESISTANCE (psi)	RECOMMENDED PRIMER	AGENCY APPROVALS
SOLVENT-BASED	5113™	1527514	1 pint brush can	General-purpose, metal pipes, added lubricity	White Paste	50,000 to 60,000	-65°F to 300°F	5,000	N/A	CFIA Listed
	5117™	1534294	1 pint brush can	General-purpose, non-shredding, chemical resistant	Black Paste	35,000 to 45,000	-65°F to 400°F	5,000	N/A	N/A
	MR 5438™	1537780	16 oz. brush-top can	Plastic pipes, easy disassembly	White Paste	90,000 to 110,000	-65°F to 300°F	5,000	N/A	CFIA Listed
NON-CURING	THREAD SEAL TAPE	226665	1/2" x 520" x 0.003"	General-purpose, oxygen service compatible	White Tape	N/A	Up to 500°F	Pressure Rating for Pipe	N/A	N/A

LOCTITE® Activator Properties Chart

	LOCTITE® PRODUCT	IDH	PACKAGE TYPE & SIZE	COLOR	VISCOSITY (cP)	BASE	ON-PART LIFE	DRY TIME	APPLICATION	AGENCY APPROVALS
ACTIVATORS	SF 7088™ PRIMER	1069258	17 g stick	Teal	Semisolid	No solvent	30 days	None	Anaerobics	CFIA Listed
	SF 7090™ ACTIVATOR	135287 88068	1 fl. oz. bottle 1 liter bottle	Dark Blue	17.5	No solvent	1 hour	None	Anaerobics	N/A
	SF 7471™ PRIMER	135285 135337 229932	1.75 fl. oz. bottle 4.5 oz. net wt. aerosol can 1 gallon can	Amber	2	Acetone/ Isopropanol	7 days	30 to 70 seconds	Anaerobics	MIL-S-22473E for existing designs, ASTM D-5363 for new designs, CFIA Listed
	SF 7649™ PRIMER	135286 231020 209715 135284	1.75 fl. oz. glass bottle 25 g net wt. aerosol can 4.5 oz. net wt. aerosol can 1 gallon can	Clear/ Green	2	Acetone	30 days	30 to 70 seconds	Anaerobics	MIL-S-22473E for existing designs, ASTM D-5363 for new designs, NSF/ANSI 61, NSF P1, CFIA Listed

Your Application: EMERGENCY REPAIR

Solution / **Product Description**

Replace or Repair O-Ring Seals → O-Ring Making Kit

LOCTITE® O-Ring Making Kit

Makes replacement, high performance O-rings in less than a minute. This compact kit contains four 3-foot lengths of common diameters of Buna N (nitrile) cord, LOCTITE® 404® Instant Adhesive, O-ring fixture, blade, a waterproofing solution, and a cleanup solution. *Cut and splice tool and standard size cord stock are available.*

IDH	Package Size
228171	N/A

Repair Stripped Threads → PC 3967™

LOCTITE® PC 3967™ Stripped Thread Repair Kit

Permanently repairs stripped threads and fasteners in five minutes (up to SAE Grade 5 English and 8.8 metric). Allows up to 1,538 in.-lb. torque (on 1 in. bolt) and 300°F (149°C) Resists most shop fluids.

IDH	Package Size
236382	12.9 ml kit

Stop Live Pipe Leaks → Pipe Repair Kit Pro

LOCTITE® PC 5070™ Pro Advanced Pipe Repair Kit

All-inclusive kit that contains all materials needed for reliable, long-lasting repairs of depressurized or under pressure cracks, pinholes and leaking threads on metal, plastic and composite pipes, joints, tees and couplings.

IDH	Package Size
2985301	3 in. x 9 ft. outer wrap; putty; pressure sealing tape
2985100	4 in. x 15 ft. outer wrap; putty; pressure sealing tape

Insulation and Sealing → SI 5075™

LOCTITE® SI 5075™ Insulating & Sealing Wrap

Non-sticky, self-fusing, multipurpose wrap. Insulates electrical, seals leaks, improves grip. Hundreds of uses: industrial, automotive and marine.

IDH	Package Size
1212164	1 in. x 10 ft. Red
1540599	1 in. x 10 ft. Black

Tool Kits

101™ Quick Service Tool Kit

LOCTITE® 101™ Quick Service Tool Kit

The "original" LOCTITE® kit containing eight of the most common LOCTITE® products.

IDH	Package Size
302892	See chart for kit contents

Toolbox

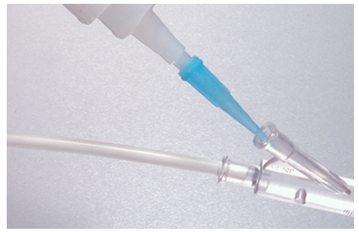
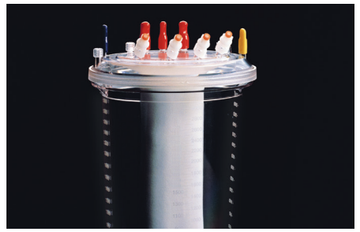
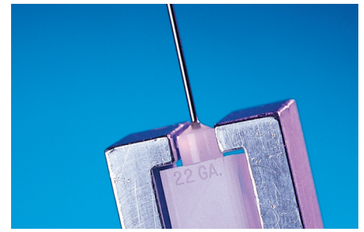
LOCTITE® Toolbox

Containing 18 of the latest and best LOCTITE® technologies to solve the most common mechanical failures, this kit has everything a professional needs to increase reliability at the base component level.

IDH	Package Size
38956	See chart for kit contents

LOCTITE® TOOLBOX & SPECIALTY KIT ORDERING CHART

	LOCTITE® PRODUCT	IDH NUMBER	KIT CONTENTS & CONTAINER	MAXIMUM TEMPERATURE RESISTANCE	AGENCY APPROVALS
SPECIALTY REPAIR	LOCTITE® PC 3967™ STRIPPED THREAD REPAIR KIT	236382	12.9 ml kit	300°F (149°C)	CFIA Listed
SPECIALTY REPAIR	LOCTITE® O-RING MAKING KIT	228171	MR 6222™ Waterproofing Solution, 1 oz., IDH number 74126 SF 7532G™ Cleanup Solvent, 1 oz., IDH number 75326 404® instant adhesive, 1/3 oz., IDH number 46551 [STANDARD] Cord: 3/32 in., 1/8 in., 3/16 in., 1/4 in. 8900591 O-Ring Stock, Buna N, 1/4 in. x 3 ft. 8900589 O-Ring Stock, Buna N, 1/8 in. x 3 ft. 8900588 O-Ring Stock, Buna N, 3/32 in. x 3 ft. 8900590 O-Ring Stock, Buna N, 3/16 in. x 3 ft.	N/A	CFIA Listed
SPECIALTY REPAIR	PIPE REPAIR KIT PRO	2985301 2985100	3 in. x 9 ft. outer wrap; putty; pressure sealing tape 4 in. x 15 ft. outer wrap; putty; pressure sealing tape	250°F (121°C)	NSF 61, BS 6920
SPECIALTY REPAIR	PIPE REPAIR KIT	96321 96322	3 in. x 9 ft. outer wrap; putty 4 in. x 15 ft. outer wrap; putty	250°F (121°C)	CFIA Listed
GENERAL MAINTENANCE	101™ QUICK SERVICE TOOL KIT	302892	243™ Threadlocker, Medium Strength, 10 ml 263™ Threadlocker, Primerless High Strength, 10 ml SF 7088™ Primer, 17 g 454™ Instant Adhesive Gel, 3 g 660™ Retaining Compound, 6 ml 565™ Thread Sealant, 50 ml SI 587™ Blue High Performance RTV Silicone, 70 ml 518™ Flange Sealant, 50 ml 249™ Blue Threadlocker Tape, 260 in. roll	N/A	N/A
GENERAL MAINTENANCE	LOCTITE® TOOLBOX	38956	(5) LOCTITE® Threadlockers – 222MS™, 10 ml; 243™, 50 ml; 248™, 9 g stick; 263™, 10 ml; 290™, 10 ml (2) LOCTITE® Thread & Gasket Sealants – 567™, 50 ml; 5452™, 50 ml; 518™, 50 ml; SI 587™, 70 ml (3) LOCTITE® Retaining Compounds – 609™, 10 ml; 660™, 50 ml; 680™, 10 ml LOCTITE® 454™ Instant Adhesive, 4 g (2) LOCTITE® Lubricants – LB 8023™ Marine Grade Anti-Seize, 7 oz.; LB 8060™ Heavy-Duty Anti-Seize, 20 g stick	N/A	N/A
GENERAL MAINTENANCE	SI 5075™ INSULATING & SEALING WRAP	1212164	1 in. x 10 ft. Red	500°F (260°C)	N/A
GENERAL MAINTENANCE	SI 5075™ INSULATING & SEALING WRAP	1540599	1 in. x 10 ft. Black	500°F (260°C)	N/A

123	Medical Device Adhesive Solutions
125	Medical Device Light Cure Acrylic Adhesives
129	Medical Device Cyanoacrylate Adhesives, Accelerators & Primers
133	Medical Device Epoxy Adhesives

WHY USE LOCTITE® ADHESIVES FOR MEDICAL DEVICE APPLICATIONS?

LOCTITE® adhesives have been specified by medical device manufacturers all over the world for more than three decades. We offer over 65 products for medical device assemblies requiring biocompatibility and hundreds of other products for applications not requiring toxicity testing.

Our medical device adhesives cover almost every adhesive chemistry conceivable, providing users with a wide range of choices and assembly solutions. No matter what the application, chances are we have the right adhesive for the job. Our products are available in viscosities ranging from water-thin liquids to thixotropic gels, and are compatible with common sterilization methods such as ethylene oxide, gamma radiation, electron beam, liquid sterilization and limited cycles of autoclave and peroxide plasma.

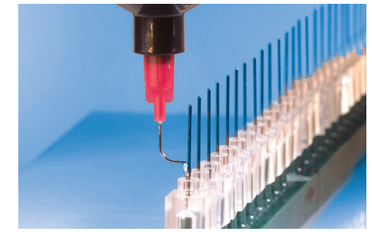
TRADITIONAL METHODS VS. LOCTITE® MODERN SOLUTIONS

Advantages of LOCTITE® medical device adhesives over welding or mechanical assembly methods include:

- Join dissimilar and difficult-to-join substrates
- Distribute stresses evenly
- Fill large gaps
- Seal and bond
- Result in a neat appearance
- Easily automated

KEY BENEFITS OF USING LOCTITE® ADHESIVES FOR MEDICAL DEVICE APPLICATIONS:

- Broadest range of medical device adhesive technologies (light cure, cyanoacrylate, epoxy, urethane, silicone)
- Adhesives meet comprehensive ISO 10993 biocompatibility requirements
- More than 30 years of medical industry experience and support
- A customized quality program tailored to the needs of the medical device industry
- Total solutions support with adhesives and equipment (dispensing, curing and process monitoring)
- Comprehensive training programs

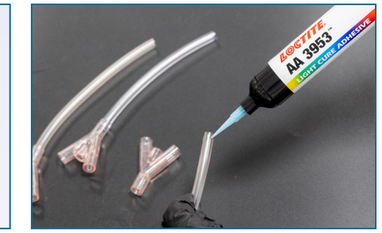


Medical Device Adhesive Solutions

PERFORMANCE CONSIDERATIONS	ADHESIVE CATEGORY				
	CYANOACRYLATES	EPOXIES	LIGHT CURE ADHESIVES	SILICONES	URETHANES
BENEFITS	Wide range of bonding applications	Wide range of formulations	Rapid cure/adhesion to plastics	Excellent temperature resistance	Excellent toughness/ flexibility
CONSIDERATIONS	Low solvent resistance	Mixing or heat required	Light cure system required	Low cohesive strength	Sensitive to moisture
TEMPERATURE RESISTANCE					
TYPICAL FOR THE CATEGORY	-65°F to 180°F (-54°C to 82°C)	-65°F to 300°F (-54°C to 149°C)	-65°F to 300°F (-54°C to 149°C)	-65°F to 350°F (-54°C to 177°C)	-65°F to 250°F (-54°C to 121°C)
HIGHEST RATED PRODUCT	250°F (121°C)	300°F (149°C)	300°F (149°C)	200°F (93°C)	250°F (121°C)
ENVIRONMENTAL RESISTANCE					
POLAR SOLVENTS (EX.: H_2O, ETHYLENE GLYCOL, ISOPROPYL ALCOHOL, ACETONE)	Poor[1]	Very Good	Good	Good	Good
NONPOLAR SOLVENTS (EX.: MOTOR OIL, TOLUENE, GASOLINE, ATF)	Good	Excellent	Very Good	Poor to Fair	Good
ADHESION TO SUBSTRATES					
METALS	Very Good	Excellent	Good	Good	Good
PLASTICS[2]	Excellent	Fair	Excellent	Good	Very Good
GLASS	Poor	Excellent	Excellent	Good	Good
RUBBER	Very Good	Fair	Fair	Fair	Good
OVERLAPPING SHEAR STRENGTH	High	High	High	Low	Medium
PEEL STRENGTH	Low[3]	Medium	Medium	Medium	Medium
TENSILE STRENGTH	High	High	High	Low	Medium
ELONGATION/ FLEXIBILITY	Low	Low	Medium	Very High	High
HARDNESS	Rigid	Rigid	Semirigid	Soft	Soft
PERFORMANCE CONSIDERATIONS	ADHESIVE CATEGORY				
	CYANOACRYLATES	EPOXIES	LIGHT CURE ADHESIVES	SILICONES	URETHANES
NUMBER OF COMPONENTS	1	1 and 2	1	1	2
CURE TEMPERATURES	Room Temperature	Heat or Room Temperature	UV/Visible	UV/Visible	Room Temperature
FIXTURE TIME					
AVERAGE	60 seconds	5 hours	30 seconds	10 minutes	5 hours
FASTEST	<5 seconds	15 to 20 minutes	5 seconds	60 seconds	5 hours
FULL CURE TIME	24 hours	30 minutes to 24 hours	30 to 60 seconds	24 hours	24 hours
GAP FILL					
IDEAL (IN INCHES)	0.001 to 0.003	0.004 to 0.006	0.002 to 0.010	0.004 to 0.006	0.004 to 0.006
MAXIMUM (IN INCHES)	0.010	0.5	0.25	0.25	0.5
DISPENSING/MIXING EQUIPMENT REQUIRED	No	Yes (2 parts)	No	No	Yes
LIGHT CURE VERSIONS AVAILABLE?	Yes	No	Yes	Yes	No

1 Cyanoacrylates have very good moisture resistance on plastics.
2 Uncured liquid adhesives may cause stress cracking of certain thermoplastics, e.g., polycarbonate, acrylic and polysulfone. Special products and process techniques are available. Consult the LOCTITE® Design Guide to Bonding Plastics (LT-2197) or contact 1-800-LOCTITE (562-8483) for more information.
3 Exception: Toughened cyanoacrylates have high peel strength.

Medical Device Light Cure Acrylic Adhesives



Your Application — WHAT TYPE OF TRANSPARENT SUBSTRATE ARE YOU BONDING?

- Plastic to Plastic
  - Medium Viscosity → **Solution: AA 3926™**
  - Superior Tack-Free Curing → **Solution: AA 3972™**
  - Gel → **Solution: AA 3979™**
- Plastic to Metal
  - Low Viscosity → **Solution: AA 3922™**
  - Medium Viscosity → **Solution: AA 3961™**
- Flexible Substrates
  - Thermoplastics → **Solution: AA 3974™**
  - Plasticized PVC → **Solution: AA 3341™**
  - Silicone
    - Light Cure Only → **Solution: SI 5056™**
    - Light/Moisture Cure → **Solution: SI 5240™**

	AA 3926™	AA 3972™	AA 3979™	AA 3922™	AA 3961™	AA 3974™	AA 3341™	SI 5056™	SI 5240™
Chemistry	Acrylic	Acrylic	Acrylic	Acrylic	Acrylic	Acrylic	Acrylic	Silicone	Silicone
Color	Transparent to Hazy Fluorescent	Transparent to Hazy Fluorescent	Translucent/ Straw/ Fluorescent	Transparent to Hazy Fluorescent	Transparent, Colorless to Straw, Fluorescent	Translucent/ Colorless/ Fluorescent	Clear/Straw/ Fluorescent	Light Yellow/ Transparent	Translucent/White
Viscosity (cP)	5,500	4,650	56,500	300	80	56,500	525	2,200	25,000
Cure Type	UV/Visible	UV/Visible	UV/Visible	UV/Visible	UV/Visible	UV/Visible	UV/Visible	UV/Visible	UV/Visible, Humidity
ISO 10993 Compliant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Product Description

LOCTITE® AA 3926™ Light Cure Adhesive

Fluorescing, UV/visible adhesive offering superior sterilization resistance.

IDH	Package Size
434108	25 ml syringe
434109	1 liter bottle

LOCTITE® AA 3972™ Light Cure Adhesive

Rapid curing, UV/visible, fluorescing adhesive with superior tack-free curing.

IDH	Package Size
423298	25 ml syringe
423299	1 liter bottle

LOCTITE® AA 3979™ Light Cure Adhesive

A rapid curing, UV/visible non-sag gel, which fluoresces red.

IDH	Package Size
1402562	25 ml syringe
1402563	300 ml cartridge

LOCTITE® AA 3922™ Light Cure Adhesive

Fluorescing, UV/visible adhesive offering superior sterilization resistance. Ideal for bonding a wide variety of plastic and metal components where environmental resistance is required.

IDH	Package Size
312057	25 ml syringe
312054*	1 liter bottle

LOCTITE® AA 3961™ Light Cure Adhesive

Ultra low viscosity, transparent, acrylic adhesive perfect for applications requiring fast cure and rigidity. Provides excellent bonding to stainless steel, polycarbonate, ABS, acrylic, and more.

IDH	Package Size
2464890	25 ml syringe

LOCTITE® AA 3974™ Light Cure Adhesive

A highly resilient, extremely flexible, thermal-cycling resistant UV/visible adhesive that bonds plastic, metal and glass.

IDH	Package Size
1135733	25 ml syringe

LOCTITE® AA 3341™ Light Cure Adhesive

A rapid cure, UV/visible, fluorescing adhesive that bonds highly plasticized PVC and other difficult-to-bond substrates.

IDH	Package Size
230199	1 liter bottle

LOCTITE® SI 5056™ Light Cure Adhesive

A medium viscosity UV or visible light curing, noncorrosive silicone with very high bond strength. Ideal for high speed adhesion and sealing applications.

IDH	Package Size
1214249	25 ml syringe
1214250	1 liter bottle

LOCTITE® SI 5240™ Light Cure Adhesive

A self-leveling, UV or visible light silicone that also features a secondary moisture cure. Makes transparent, white-tinted seals or bonds.

IDH	Package Size
1010341	25 ml syringe
1010320	300 ml cartridge

* Made-to-order item.

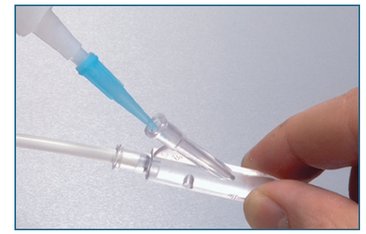
Medical Device Light Cure Acrylic Adhesives

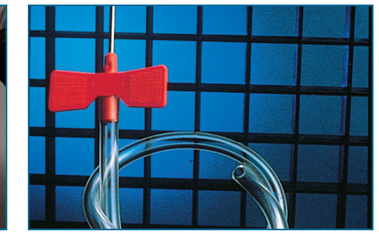
LOCTITE® Medical Device Light Cure Adhesive Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE & SIZE	APPEARANCE/ CLARITY/COLOR	CURE TYPE	KEY SUBSTRATES	VISCOSITY (cP) BROOKFIELD (25°C)	TEMPERATURE RANGE	ISO 10993 COMPLIANT
ACRYLIC UV/VISIBLE WITH FLUORESCENCE	AA 3341™	230199	1 liter bottle	Clear/Straw/ Fluorescent	Ultraviolet, visible	Thermoplastics, polyvinyl chloride	525	-65°F to 300°F (-54°C to 149°C)	■
	AA 3921™	434102 434103	25 ml syringe 1 liter bottle	Transparent to Hazy/Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinyl chloride	150	-65°F to 300°F (-54°C to 149°C)	■
	AA 3922™	312057 312054*	25 ml syringe 1 liter bottle	Transparent to Hazy/Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinyl chloride	300	-65°F to 300°F (-54°C to 149°C)	■
	AA 3924™	434105 434106	25 ml syringe 1 liter bottle	Transparent to Hazy, Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinyl chloride	1,100	-65°F to 300°F (-54°C to 149°C)	■
	AA 3926™	434108 434109	25 ml syringe 1 liter bottle	Transparent to Hazy/Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinyl chloride	5,500	-65°F to 300°F (-54°C to 149°C)	■
	AA 3936™	312050	25 ml syringe	Transparent to Hazy/Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate	11,000	-65°F to 300°F (-54°C to 149°C)	■
	AA 3942™	434101 434089	25 ml syringe 1 liter bottle	Transparent to Hazy/Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, thermoset plastic	1,250	-65°F to 300°F (-54°C to 149°C)	■
	AA 3943™	434088 434084 434087	25 ml syringe 1 liter bottle 15 liter pail	Transparent to Hazy/Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, thermoset plastic	6,750	-65°F to 300°F (-54°C to 149°C)	■
	AA 3944™	534429	25 ml syringe	Transparent to Hazy/Fluorescent	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinyl chloride	5,000	-65°F to 300°F (-54°C to 149°C)	■
	AA 3951™	2298393 2298394	25 ml syringe 1 liter bottle	Transparent, Colorless to Straw, Fluorescent	Ultraviolet, visible	Thermoset Rubbers, TPEs, Plastics, polycarbonate, polyvinyl chloride	185	-65°F to 300°F (-54°C to 149°C)	■
	AA 3953™	2298717 2298718	25 ml syringe 1 liter bottle	Transparent, Colorless to Straw, Fluorescent	Ultraviolet, visible	Thermoset Rubbers, TPEs, Plastics, polycarbonate, polyvinyl chloride	550	-65°F to 300°F (-54°C to 149°C)	■
	AA 3961™	2464890	25 ml syringe	Transparent, Colorless to Straw, Fluorescent	Ultraviolet, visible	Plastics, metals, polycarbonate	80	-65°F to 300°F (-54°C to 149°C)	■
	AA 3971™	444350 444375	25 ml syringe 1 liter bottle	Transparent to Hazy/Fluorescent	Ultraviolet, visible	Metal, thermoplastic, polyvinyl chloride, polyurethane	320	-65°F to 300°F (-54°C to 149°C)	■
	AA 3972™	423298 423299	25 ml syringe 1 liter bottle	Transparent to Hazy/Fluorescent	Ultraviolet, visible	Metal, thermoplastic, polyvinyl chloride, polyurethane	4,650	-65°F to 300°F (-54°C to 149°C)	■
	AA 3974™	1135733	25 ml syringe	Translucent/ Colorless/ Fluorescent	Ultraviolet, visible	Thermoplastic, thermoset plastic, glass, metal, ceramic	2,400	-65°F to 300°F (-54°C to 149°C)	■
	AA 3979™	1402562 1402563	25 ml syringe 300 ml cartridge	Translucent/Straw/ Fluorescent	Ultraviolet, visible	Polycarbonate, polyvinyl chloride	56,500	-65°F to 300°F (-54°C to 149°C)	■
ACRYLIC UV/VISIBLE WITHOUT FLUORESCENCE	AA 3201™	237036 135297	25 ml syringe 1 liter bottle	Clear/Pale Straw	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate	3,750	-65°F to 300°F (-54°C to 149°C)	■
	AA 3211™	135298 182815*	25 ml syringe 1 liter bottle	Clear/Pale Straw	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate	11,250	-65°F to 300°F (-54°C to 149°C)	■
	AA 3301™	475362 195722	25 ml syringe 1 liter bottle	Clear/Pale Straw	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinyl chloride	150	-65°F to 300°F (-54°C to 149°C)	■
	AA 3311™	88189 146461	25 ml syringe 1 liter bottle	Clear/Pale Straw	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinyl chloride	300	-65°F to 300°F (-54°C to 149°C)	■
	AA 3321™	135299 135300	25 ml syringe 1 liter bottle	Clear/Pale Straw	Ultraviolet, visible	Glass, metal, thermoplastic, polycarbonate, polyvinyl chloride	5,500	-65°F to 300°F (-54°C to 149°C)	■
ACRYLIC UV WITHOUT FLUORESCENCE	AA 3051™	135274	1 liter bottle	Transparent	Ultraviolet	Glass, metal, thermoplastics	1,200	-65°F to 300°F (-54°C to 149°C)	■
	AA 3381™	231590	25 ml syringe	Translucent, Colorless	Ultraviolet	Thermoplastic, thermoset plastics	5,100	-65°F to 300°F (-54°C to 149°C)	■
SILICONE ADHESIVE/ SEALANTS	SI 5240™	1010341 1010320	25 ml syringe 300 ml cartridge	Translucent/White	UV/visible, humidity	Silicone, metal, glass, plastic	25,000	-65°F to 200°F (-54°C to 93°C)	■
	SI 5248™	92337	300 ml cartridge	Straw	Ultraviolet, moisture	Glass, metal, ceramic	65,000	-65°F to 350°F (-54°C to 177°C)	
	SI 5055™	1212167 1214246	25 ml syringe 1 liter bottle	Light Yellow/ Transparent	Ultraviolet, visible	Silicone, metal, glass, plastic	525	-65°F to 200°F (-54°C to 93°C)	■
	SI 5056™	1214249 1214250	25 ml syringe 1 liter bottle	Light Yellow/ Transparent	Ultraviolet, visible	Silicone, metal, glass, plastic	2,200	-65°F to 200°F (-54°C to 93°C)	■

* Made-to-order item.

Medical Device Cyanoacrylate Adhesives, Accelerators & Primers





Your Application — WHAT IS THE PRIMARY INSTANT ADHESIVE APPLICATION REQUIREMENT?

Your Application	Solution	Chemistry	Color	Viscosity (cP)	ISO 10993 Compliant
Surface Insensitive — Low Viscosity	4011™	Cyanoacrylate	Clear	100	Yes
Surface Insensitive — Medium Viscosity	431™	Cyanoacrylate	Clear	1,000	Yes
Surface Insensitive — Gel	4541™	Cyanoacrylate	Clear	Gel	Yes
Low Odor/Low Bloom — Low Viscosity	4601™	Cyanoacrylate	Clear	45	Yes
Low Odor/Low Bloom — Medium Viscosity	4031™	Cyanoacrylate	Clear	1,375	Yes
Highly Flexible CA — Low Viscosity	4902™	Cyanoacrylate	Clear	1,745	Yes
Thermal & Impact Resistant — Low Viscosity	435™	Cyanoacrylate	Clear	175	Yes
Rapid Curing (Light Cure) — Low Viscosity	4310™	Light Cure Cyanoacrylate	Clear/Pale Green	175	Yes
Rapid Curing (Light Cure) — Medium Viscosity	4311™	Light Cure Cyanoacrylate	Clear/Pale Green	1,050	Yes
Surface Preparation — Low Energy Plastics	SF 7701™	Primer	Clear	N/A	Yes
Surface Preparation — Accelerated Cure & Gap Fill	SF 713™	Accelerator	Clear	N/A	Yes

Product Description

LOCTITE® 4011™ Instant Adhesive
A low viscosity, instant adhesive ideally suited for dry environments, as well as for bonding acidic surfaces.

IDH	Package Size
142059	20 g bottle
146477	1 lb. bottle

LOCTITE® 431™ Instant Adhesive
A medium viscosity, instant adhesive ideally suited for dry environments, as well as for bonding acidic surfaces.

IDH	Package Size
868371	20 g bottle
868372	1 lb. bottle

LOCTITE® 4541™ Instant Adhesive
A gel viscosity adhesive particularly suited for bonding porous or absorbent materials. Formulated for faster cure speeds on dry or acidic surfaces and substrates.

IDH	Package Size
92339	10 g syringe
223088	20 g tube
92335	200 g tube

LOCTITE® 4601™ Instant Adhesive
A low viscosity instant adhesive offering lower odor and lower blooming for improved cosmetic appearance.

IDH	Package Size
229810	20 g bottle
229811	1 lb. bottle

LOCTITE® 4031™ Instant Adhesive
A medium viscosity instant adhesive offering lower odor and lower blooming for improved cosmetic appearance.

IDH	Package Size
229804	20 g bottle
229805	1 lb. bottle

LOCTITE® 4902™ Instant Adhesive
Highly flexible CA with elongations over 100% designed for high flexing bond lines.

IDH	Package Size
1875841	20 g bottle
1875842	1 lb. bottle

LOCTITE® 435™ Instant Adhesive
The first true clear, surface insensitive, elastomer-modified instant adhesive. Faster fixture times over traditional toughened adhesives with exceptional bond and peel strength on metals, plastics and rubbers.
CFIA Listed

IDH	Package Size
840057	20 g bottle
840071	1 lb. bottle

LOCTITE® 4310™ Light Cure Adhesive
A low viscosity toughened fluorescent adhesive that achieves tack-free cures in less than 5 seconds. Surface versatile with shadow cure capability.

IDH	Package Size
1401792	1 oz. bottle
1401790	1 lb. bottle

LOCTITE® 4311™ Light Cure Adhesive
A medium viscosity toughened fluorescent adhesive that achieves tack-free cures in less than 5 seconds. Surface versatile with shadow cure capability.

IDH	Package Size
1401791	1 oz. bottle
1401789	1 lb. bottle

LOCTITE® SF 7701™ Primer
An adhesion promoter formulated for use with polyolefins and other low surface energy plastics. Fast dry time and long on-part life.

IDH	Package Size
88195	1.75 fl. oz. bottle
88196	16 fl. oz. can

LOCTITE® SF 713™ Accelerator
An accelerator for use with instant adhesive to speed fixture and enhance gap filling. Fast dry time and 10 minute on-part life.

IDH	Package Size
135305	1.75 fl. oz. bottle

* Made-to-order item.

LOCTITE® Medical Device Cyanoacrylate Adhesive, Accelerator & Primer Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE & SIZE	APPEARANCE/ CLARITY/COLOR	CURE TYPE	KEY SUBSTRATES	VISCOSITY (cP) BROOKFIELD (25°C)	TEMPERATURE RANGE	ISO 10993 COMPLIANT
CYANOACRYLATES	402™	2714628 2712746	20 g bottle 500 g bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal, elastomer, including rubber	110	-65°F to 275°F (-54°C to 135°C)	■
	431™ (SI)	868371 868372	20 g bottle 1 lb. bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal, elastomer, including rubber	1,000	-65°F to 180°F (-54°C to 82°C)	■
	435™ (T)	840057 840071	20 g bottle 1 lb. bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal, elastomer, including rubber	175	-65°F to 250°F (-54°C to 121°C)	■
	4011™ (SI)	142059 146477	20 g bottle 1 lb. bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal, elastomer, including rubber	100	-65°F to 180°F (-54°C to 82°C)	■
	4013™ (GP)	237041 88129	20 g bottle 1 lb. bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal	600	-65°F to 180°F (-54°C to 82°C)	■
	4014™ (GP)	202152 229650	20 g bottle 1 lb. bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal	3	-65°F to 220°F (-54°C to 104°C)	■
	4031™ (LO)	229804 229805	20 g bottle 1 lb. bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal	1,375	-65°F to 160°F (-54°C to 71°C)	■
	4061™ (SI)	229806 229807	20 g bottle 1 lb. bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal, elastomer, including rubber	20	-65°F to 180°F (-54°C to 82°C)	■
	4081™ (LO)	229808 229809	20 g bottle 1 lb. bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal	7	-65°F to 160°F (-54°C to 71°C)	■
	4161™ (GP)	237038	20 g bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal	1,575	-65°F to 180°F (-54°C to 82°C)	■
	4541™ (SI)	223088 92335 92339	20 g tube 200 g tube 10 g syringe	Clear	Humidity	Thermoplastic, thermoset plastic, metal, elastomer, including rubber, wood, paper, leather, fabric	Gel	-65°F to 180°F (-54°C to 82°C)	■
	4601™ (LO)	229810 229811	20 g bottle 1 lb. bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal	45	-65°F to 160°F (-54°C to 71°C)	■
	4851™ (FL)	524540 524541	20 g bottle 1 lb. bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal, elastomer, including rubber	375	-65°F to 125°F (-54°C to 52°C)	■
	4861™ (FL)	518485 518547	20 g bottle 1 lb. bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal, elastomer, including rubber	4,250	-65°F to 125°F (-54°C to 52°C)	■
	4981™ (TR)	229812 229813	20 g bottle 1 lb. bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal, elastomer, including rubber	500	-65°F to 220°F (-54°C to 104°C)	■
	4902™	1875841 1875842	20 g bottle 1 lb. bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal, elastomer, including rubber	1,745	-65°F to 180°F (-54°C to 82°C)	■
	4902FL™	2103947 2104199	20 g bottle 1 lb. bottle	Clear	Humidity	Thermoplastic, thermoset plastic, metal, elastomer, including rubber	200	-65°F (-54°C) to 180°F (82°C)	■
LIGHT CURE CYANOACRYLATES	4306™	487909 487921	1 oz. bottle 1 lb. bottle	Clear/ Pale Green	Ultraviolet, visible, humidity	Thermoplastic, polycarbonate, elastomer, metal	20	-65°F to 180°F (-54°C to 82°C)	■
	4307™	487920 487922	1 oz. bottle 1 lb. bottle	Clear/ Pale Green	Ultraviolet, Visible, Humidity	Thermoplastic, polycarbonate, elastomer, metal	900	-65°F (-54°C) to 180°F (82°C)	■
	4310™	1401792 1401790	1 oz. bottle 1 lb. bottle	Clear/ Pale Green	Ultraviolet, visible, humidity	Thermoplastic, polycarbonate, elastomer, metal	175	-65°F to 200°F (-54°C to 93°C)	■
	4311™	1401791 1401789	1 oz. bottle 1 lb. bottle	Clear/ Pale Green	Ultraviolet, visible, humidity	Thermoplastic, polycarbonate, elastomer, metal	1,050	-65°F to 200°F (-54°C to 93°C)	■
	4314™	2610570 2610581	1 oz. bottle 1 lb. bottle	Clear/ Pale Green	Ultraviolet, Visible, Humidity	Thermoplastic, polycarbonate, elastomer, metal	175	-65°F (-54°C) to 180°F (82°C)	■
ACCELERATORS & PRIMERS	SF 713™	135305	1.75 fl. oz. bottle	Clear	N/A	Isopropanol-based accelerator for cyanoacrylates	1	N/A	■
	SF 7701™	88195 88196	1.75 fl. oz. bottle 16 fl. oz. can	Clear	N/A	Heptane-based adhesion promoter for low energy surface plastics	1	N/A	■

(SI) = Surface Insensitive
(GP) = General-Purpose
(LO) = Low Odor/Low Bloom
(FL) = Flexible
(TR) = Thermally Resistant
(T) = Toughened
* Made-to-order item.

Medical Device Epoxy Adhesives

Your Application — WHAT TYPE OF CURE WOULD YOU LIKE FOR YOUR APPLICATION?

Room Temperature Cure	Heat Cure
Rigid Low Viscosity	Rigid High Viscosity
Solution	
EA M-31CL™	EA 3984™

Chemistry	Epoxy	Epoxy
Color	Ultra-Clear	Light Grey
Viscosity (cP)	6,000	25,000
Mix Ratio	2:1	1 Part
Cure Type	Room Temperature	Heat Cure

Product Description

LOCTITE® EA M-31CL™ Adhesive

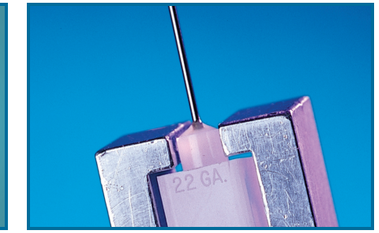
A low viscosity epoxy that bonds glass, ceramic, metal and many rigid plastics. Ideal for applications where optical clarity and excellent structural and mechanical properties are required.

IDH	Package Size
235021	50 ml dual cartridge
1460891	20 kg - part A
1460870	20 kg - part B

LOCTITE® EA 3984™ Adhesive

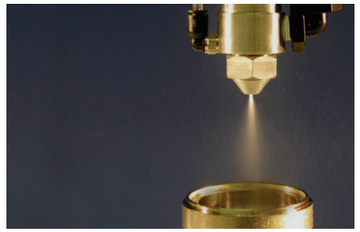
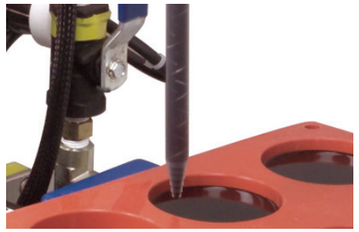
Highly fluorescent, one-part, heat cure epoxy adhesive offering superior physical, environmental and performance properties.

IDH	Package Size
443949	30 ml syringe



LOCTITE® Medical Device Epoxy Adhesive Properties Chart

	LOCTITE® PRODUCT	IDH NUMBER	PACKAGE TYPE & SIZE	APPEARANCE/ CLARITY/COLOR	CURE TYPE	KEY SUBSTRATES	VISCOSITY (cP) BROOKFIELD (25°C)	TEMPERATURE RANGE	ISO 10993 COMPLIANT
EPOXIES	EA 3984™	443949	30 ml syringe	Light Grey	Heat cure	Thermoset plastic, metal, glass, ceramic	25,000	-65°F to 300°F (-54°C to 149°C)	■
EPOXIES	EA M-21HP™	235017	50 ml dual cartridge	Off-White	Room temperature	Thermoplastic, thermoset plastic, elastomer, metal, glass, ceramic	37,000	-65°F to 300°F (-54°C to 149°C)	■
EPOXIES	EA M-31CL™	235021 1460891 1460870	50 ml dual cartridge 20 kg - part A 20 kg - part B	Ultra-Clear	Room temperature	Thermoplastic, thermoset plastic, polycarbonate, metal, glass, ceramic	6,000	-65°F to 300°F (-54°C to 149°C)	■

135	Equipment
137	Dispense Systems
161	Automated Robotic Systems
164	General-Purpose Applicators
169	LED Light-Curing Systems
177	Consumables

AS A FULL-SERVICE SUPPLIER OF EQUIPMENT, HENKEL OFFERS A WIDE VARIETY OF EQUIPMENT SERVICES TO ITS CUSTOMERS

Since 1971, Henkel Corporation has designed, built and integrated high-quality equipment solutions. From simple handheld devices to fully automated systems, Henkel offers a complete line of standard off-the-shelf LOCTITE® brand dispensing and light curing equipment, which can be integrated easily into your manufacturing process.

FACTORY REPAIRS

If you have equipment in need of repair, Henkel can restore it to original operating specifications. Customers often schedule preventive repairs to coincide with annual shutdowns. Henkel can work with you to get your equipment up and running in the fastest possible time frame. Rental equipment may be available on a short-term basis to minimize downtime.

Benefits of factory repair service include:

- Trained technicians evaluate equipment based on original design specifications to identify critical and preventive repair recommendations
- Equipment is repaired using original factory parts
- All equipment is fully tested to original quality specifications
- All repairs carry a 30-day labor and 90-day parts warranty

CALIBRATIONS

Henkel provides calibration services for all of its light meters. All meters are calibrated to original calibration standards. Data is collected before and after calibration, and a calibration certificate is issued that states the test results. In addition, you can sign up with Henkel for calibration reminders. Also, all units are inspected during calibration for any needed repairs.

FIELD SERVICE

Henkel technicians are available to travel to your location for repair services, preventive maintenance, training, or assistance in setting up a new system. Whatever you need, Henkel can provide the service.

SPARE PARTS

Spare parts and accessories are available through the equipment services group of Henkel. Most common spare parts can be identified on our website at www.next.henkel-adhesives.com. If you cannot find the part you are looking for, our equipment services group can help you identify that part and provide you with a quote.

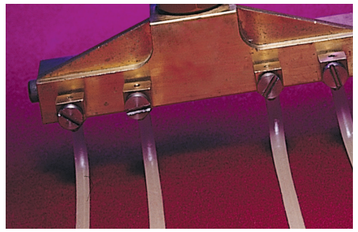
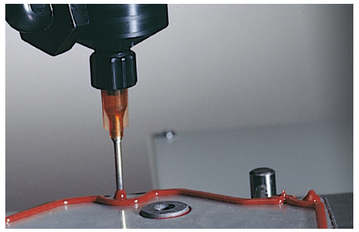
REBUILD EXCHANGE PROGRAM

The Henkel rebuild exchange program offers customers a cost-effective way of streamlining the repair of dispensing valves. The rebuild program allows customers to send in an old valve and receive a reconditioned valve in return. Customers who participate in this program typically keep a spare valve in inventory, so if a valve goes down, it can be replaced immediately. The valve in need of repair is then sent to Henkel and a reconditioned valve is shipped back to the customer for future use.

Advantages of the rebuild exchange program are:

- Rebuilt equipment is less than half the cost of a new unit.
- Rebuilt equipment is shipped in one to two business days.
- Highly trained technicians use original factory parts.
- All equipment is specially treated with a Henkel proprietary technology to prolong its useful life with reactive adhesives.
- All rebuilds carry a 30-day labor and 90-day parts warranty.

DISCOUNT EQUIPMENT

Henkel is able to offer a wide range of used or discontinued equipment at discounted prices. This equipment typically has been used in our rental program or has been used for customer demonstrations or trade shows. This equipment may have cosmetic blemishes but performs to original factory specifications. All equipment carries the same warranty as new equipment, and is fully tested and reconditioned prior to sale.

EQUIPMENT RENTAL

Many of the equipment products that Henkel offers are available for short-term rental. Henkel's equipment rental program allows customers the flexibility to confirm the performance of our adhesive and equipment risk-free before investing in a purchase. If, during the first 30 days, you decide that you would like to purchase the rental equipment, the entire rental charge is credited toward your purchase.

The benefits of this program include the following:

- The performance of a new manufacturing process can be confirmed before investing fully in the purchase of equipment.
- Short production runs can be accommodated without having to buy equipment.
- Equipment can be rented during the repair of production equipment, minimizing any downtime.

LEASE-TO-OWN PROGRAM

Henkel offers a lease-to-own program for new equipment. According to the United States Equipment Lessors Association, 80% of all companies use leasing to acquire some or all of the machinery and equipment they use to run their businesses. Henkel's lease-to-own program provides an effective way for your business to acquire almost any Henkel equipment. Leases can be customized to each company's needs. Our program can also include other services and spare parts as part of the equipment lease. Let us customize a lease program to meet your needs.

PREVENTIVE MAINTENANCE CONTRACTS

There are many misconceptions about preventive maintenance. One such misconception is that preventive maintenance is unduly costly. This may be true for some components, but not all. Without preventive maintenance, costs for lost production time from unscheduled equipment breakdown will be incurred. Also, preventive maintenance will result in savings due to an increase in effective system service life.

Long-term benefits of preventive maintenance include:

- Improved system reliability
- Decreased cost of replacement
- Decreased downtime
- Better spare part inventory management

Henkel can create a preventive maintenance contract that fits your specific equipment and work with your maintenance staff to ensure maximum uptime of your equipment.

REQUEST EQUIPMENT SERVICES

On the Web

To learn more about the services Henkel offers, you can visit our website at www.next.henkel-adhesives.com. In addition to our services, the website offers manuals and technical information on LOCTITE® equipment products.

Via Email

To request a quote or get more information, email your request to equipment-customerservice@loctite.com.

By Telephone

If you wish to speak to us regarding an equipment service, you can call 860-571-5174 to speak to an equipment services representative.

If you have a question regarding equipment setup or operation, our technical information staff is available to help. To contact a staff member, call 1-800-LOCTITE (562-8483) and choose the technical service option.

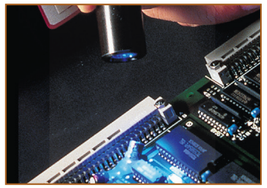
LOCTITE® EQUIPMENT WEBSITE

To better support our wide array of equipment services, our equipment website provides easy access to all service options and inquiries for all LOCTITE® equipment you may be interested in. Technical literature, equipment showroom locator, operational videos, and much more are all at your fingertips for quick and easy access. You can also choose to purchase directly online using a major credit card. Select from our wide array of adhesive dispensing and light curing equipment. Shipping time for most items is just one to two business days.

Visit our website at next.henkel-adhesives.com.

DISPENSE SYSTEMS

CONTROLLERS & DISPENSE RESERVOIRS



LOCTITE® equipment offers high-quality dispensing systems to the marketplace. Henkel's experience and partnerships between customers, application engineering, and equipment engineering means when you purchase LOCTITE equipment, you get the highest level of expertise, backed by technical service and support unmatched in the industry. The broad range of LOCTITE dispensing systems offers you solutions for an array of adhesive package sizes for various market applications.

Selecting a compatible Dispensing Solution is critical to achieve optimum performance. The primary considerations for selecting a Dispensing Solution include:

Adhesive Chemistry	Adhesive chemistries cure with specific mechanisms or exposure to certain environments.
Package Size and Type	Adhesives are typically offered in various package sizes, depending on shelf life or environmental stability.
Process Requirements (Manual, Semi-Automated, Automated)	Manufacturing process requirements vary in production rate, accuracy/repeatability, part size/geometry, and dispense pattern.

Typical Dispensing Solutions include:

CONTROLLERS & DISPENSE RESERVOIRS

LOCTITE Controllers and Dispense Reservoirs are designed to quickly and easily integrate with each other to deliver a cost-effective solution, as well as improve performance over manual dispensing methods. Compatible with adhesive packs from 50 ml to 2 KG.

DISPENSE VALVES

LOCTITE Dispense Valves for adhesive or fluid delivery are uniquely designed to meet different manufacturing needs, and should be combined with a LOCTITE reservoir and/or a controller.

SYRINGE DISPENSE SYSTEMS

LOCTITE Pneumatic Syringe Dispense Systems can accommodate multiple adhesive package sizes and conveniently dispense with precision and ease.

CARTRIDGE DISPENSE SYSTEMS

LOCTITE Cartridge Dispense Systems are designed to support both handheld or benchtop operations, and allow you to dispense directly from the package with ease.

ANAEROBIC DISPENSE SYSTEMS

LOCTITE Anaerobic Dispense Systems are designed to apply LOCTITE anaerobic products for threadlocking, retaining, and sealing in a wide range of applications—from ID bore coating to gasket making.

VOLUMETRIC DISPENSE SYSTEMS

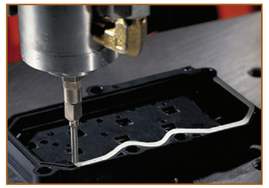
LOCTITE Volumetric Dispense Systems work with positive displacement technology, as opposed to conventional pressure/time systems, to deliver a high level of precision and accuracy

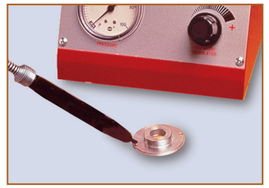
Compatible Adhesive Technologies

LOCTITE equipment is specifically designed to work with our broad range of adhesive solutions.

- Anaerobics — AN
- Cyanoacrylates — CA
- Light-Cures — LC
- Silicones — SI
- Acrylics — AC
- Two Components — 2K

CONTROLLERS & DISPENSE RESERVOIRS





RC30 Manual Reservoir

IDH: 2814022

The LOCTITE® RC30 Manual Reservoir is suitable for the application of LOCTITE adhesives with a manual applicator at workstations such as in workshops, laboratories, and industrial installations. The reservoir is equipped with a low-level sensor that sends an electronic signal to a LOCTITE brand controller and is typically integrated into a dispensing system that consists of a dispensing valve and any LOCTITE dispense controller. The reservoir can accommodate most standard LOCTITE adhesive bottles.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN CA LC AC

FEATURES:

- Cost-effective manual dispensing reservoir for a variety of LOCTITE adhesives.
- Low-level sensor.
- Integrates directly with LOCTITE valves and controllers.

Scan QR code to check out our new how-to-use video.

RC32/RC34 Automatic Reservoirs

IDH: 2814023 (RC32), 2830690 (RC34)

The LOCTITE RC32 and RC34 Automatic Reservoirs are suitable for the application of LOCTITE adhesives in semi- or fully-automated assembly processes where a LOCTITE controller is already in use. They allow for pressure adjustment and/or management directly from the LOCTITE controller, and include a low-level sensor. The reservoirs can accommodate most standard LOCTITE adhesive bottles.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN CA LC AC

FEATURES:

- Cost-effective dispensing reservoir for a variety of LOCTITE adhesives.
- RC32 includes single-point, low-level sensor.
- RC34 includes dual-point, low-level sensor.
- Integrates directly with high-functioning LOCTITE controllers.
- Allows for reservoir pressure to be managed by external controller.

Scan QR code to check out our new how-to-use video.

RC40 Integrated Semi-Automatic Dispenser

IDH: 2814025

The LOCTITE RC40 Integrated Semi-Automatic Dispenser combines a dual-channel dispense controller and a reservoir into a single unit. The controller provides two (2) independent digital timing channels that provide control of two (2) pneumatic outputs. These outputs can be used to control dispense valves or any other pneumatic device. The reservoir can accommodate most standard LOCTITE adhesive bottles.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN CA LC AC

FEATURES:

- Integrated reservoir and controller solution in one system.
- Two independent digital timing channels.
- Easy-to-use keypad with LCD display screen for entering values.
- Simple menu-driven commands.

Scan QR code to check out our new how-to-use video.

RC50 Integrated Dispenser

IDH: 2814024

The LOCTITE® Pulse RC50 Integrated Dispenser, I4.0, is an enhanced version of the RC40 Integrated Dispenser and offers a digital touch screen for operation, as well as a precision regulator for low-viscosity dispensing. The dispenser is industry 4.0 compatible, providing enhanced communication/connectivity via ethernet or Wi-Fi. The reservoir can accommodate most standard LOCTITE adhesive bottles.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN CA LC AC

FEATURES:

- Integrated reservoir and controller solution in one system.
- Two independent digital timing channels.
- Easy-to-use, full-color touch screen.
- The dispenser is industry 4.0 compatible, providing enhanced communication/connectivity via ethernet or Wi-Fi.

Scan QR code to check out our new how-to-use video.

Dual-Channel Controller

IDH: 1275665

The LOCTITE® Dual-Channel Controller is a versatile, multi-function controller for actuating one or two dispensing valves, as well as appropriate peripheral equipment, such as an advancing slide, rotorspray, an in-line flow monitor or reservoir. Reservoir pressure is regulated by means of a precision regulator and measured by a digital transducer. This controller can be integrated into fully-automated assembly line operations by means of the PLC interface.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN CA LC SI AC 2K

FEATURES:

- Two-channel multi-function controller.
- Digital readout for reservoir pressure, program step number, status of dispense, and dispense time in seconds.
- Four (4) independent dispense programs can be stored in memory.
- Full integration capability into highly-automated production systems.

LOCTITE® EQ RB10 Rotary Dispense System

IDH: 1635546

The LOCTITE EQ RB10 Rotary Dispense System is used for repetitive dispensing of circles or arcs. It is a fully integrated system that will directly control a cartridge or dispense valve and will operate any LOCTITE Syringe Dispensing System. The rugged all-metal construction is designed for tough manufacturing environments and the all-digital control panel simplifies setup.

Features:

- Integrated Solution – plug and play with LOCTITE Valves, Reservoirs and Syringe Systems.
- Digital control of rotation, dispense start and stop and delays.
- Adjustable height, position, angle of dispense and advance slide speed.
- Reservoir low-level interface with cycle interruption and display message.
- Part position sensing allows orientation of adhesive bead start and end.
- Threaded and non-threaded mounting holes for fixtures.
- Operator lockout for supervisory control of settings.
- Dispense valve and syringe mounting hardware available.
- Accepts all LOCTITE Robot Mounting hardware. See page 80.

Dispensing from 300 ml cartridges has never been easier when you take charge with our LOCTITE® and TEROSON® dispensing systems, designed to support handheld or benchtop operations. Choose your unit based on your process requirements, product chemistry and viscosity as summarized below. Dispense directly from the package with no need for product downloading to syringe or other dispensing containers.

LOCTITE® High Pressure 300 ml Benchtop Dispenser

IDH: 1046901

Very convenient Benchtop Cartridge Dispenser designed for dispensing high viscosity, single-component adhesives and sealants packaged in 300 ml cartridges.

Features:

- High-pressure capability up to 725 psi (50 bar) product pressure.
- Minimal pressure fluctuation results in consistent product flow.
- Pump cycle rate: up to 200 cycles/minute (maximum).
- Up to 10-ft. feedline length.
- Accepts LOCTITE 300 ml cartridges.
- Product viscosities of 10,000-1,000,000 cP.
- Low level sensing capabilities.

Cyanoacrylate Dispense Valve

IDH: 318654

The LOCTITE Cyanoacrylate Dispense Valve is designed for cyanoacrylates, retaining compounds, and threadlockers. It has a small profile and its simple design facilitates field repair. The Cyanoacrylate Dispense Valve can be used with integrated dispense reservoirs to form a complete dispensing system.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN CA

FEATURES:

- Specifically designed for the dispensing of LOCTITE cyanoacrylate adhesives.
- Compact size and weight.
- Simple design which facilitates field repair.
- Easy integration with LOCTITE reservoirs and controllers.

Light-Cure Dispense Valve

IDH: 218280

The LOCTITE Light-Cure Dispense Valve is designed for low- to medium-viscosity light-cure acrylics, retaining compounds, and threadlockers. It has a small profile and its simple design facilitates field repair. It can be used with integrated dispense reservoirs to form a complete dispensing system.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN LC

FEATURES:

- Specifically designed for the dispensing of LOCTITE light-cure adhesives.
- Compact size and weight.
- Simple design which facilitates field repair.
- Easy integration with LOCTITE reservoirs and controllers.

Stationary Applicator Valves

IDH: 88644 (1/4 in.), 88645 (3/8 in.)

The LOCTITE® Stationary Applicator Valves with a 1/4 in. or 3/8 in. feed line are slim, lightweight, patented, no-seal dispense valves. These stationary applicators require a controller and product reservoir and can be used with an integrated dispense reservoir to form a complete dispensing system.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN CA LC SI AC

FEATURES:

- Specifically designed for precision dispensing of LOCTITE adhesives.
- Slim, lightweight, no-seal design.
- Adjustable opening and closing speeds for increased dispensing control.
- Easy integration with LOCTITE reservoirs and controllers.

VA40 CA Volumetric Valve

IDH: 2333708

The LOCTITE VA40 CA Volumetric Valve is a positive displacement metering valve which dispenses a precise volumetric drop of adhesive with each cycle. The LOCTITE VA40 is specifically designed to dispense drops of cyanoacrylate with precise dosing in the range of 1.5 to 6 microliters.

COMPATIBLE ADHESIVE TECHNOLOGIES:

CA LC

FEATURES:

- Specifically designed for volumetric dot dispensing of LOCTITE cyanoacrylate adhesives.
- Quick and reliable priming.
- Long-life seal design minimizes maintenance requirements.
- Easy integration with LOCTITE reservoirs and controllers.

Low-Viscosity Handheld Valve

IDH: 444643

The LOCTITE Low-Viscosity Handheld Valve is a pneumatically-operated, adjustable seat valve designed to be used in conjunction with pressure/time dispense systems. This valve is capable of delivering very small drop sizes, even with low-viscosity products. It can be used especially for cyanoacrylates and other low-pressure applications.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN CA

FEATURES:

- Specifically designed for the dispensing of low-viscosity cyanoacrylate and anaerobic adhesives.
- Slim, ergonomic design.
- Ideal for dispensing very small drop sizes.
- Easy integration with LOCTITE reservoirs.

Vari-Drop® Applicator (w/o Tubing and Guards)

IDH: 215996

The LOCTITE Vari-Drop Applicator is suitable for manually dispensing low- to medium-viscosity LOCTITE products that can be dispensed using pressure/time dispensing. The adjusting screw allows repeatable dispense from light to heavy beads or drops.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN CA LC AC

FEATURES:

- Specifically designed for the manual dispensing of low- to medium-viscosity LOCTITE adhesives.
- Cost-effective solution for handheld dispensing needs.
- Field-serviceable.
- Easy integration with LOCTITE reservoirs.

LOCTITE® EQ VA10 Micro Diaphragm Valve

IDH: 1611449

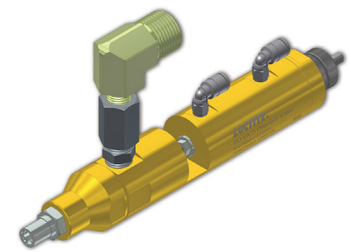
The LOCTITE® EQ VA10 Micro Diaphragm Valve is a miniature dispensing valve designed to dispense precision drops and beads of low- to mediumviscosity adhesive. Its compact size allows for closer center-to-center spacing for multiple point dispensing in applications like needle bonding. Its lightweight feature allows for faster motion control movements when used on robot systems and can dispense at a faster frequency as compared to conventional valves. A tamper-resistant stroke control provides for highresolution stroke adjustment.

Features:

- Stackable at 0.75" on center.
- Bubble-free, no-drip dispensing.
- Compact size and weight.
- High-resolution stroke adjustment.
- Sealless design.
- Fail-safe – air to open. Spring to close.
- UHMW polyethylene diaphragm.
- Fluid body material: 316 stainless steel.
- Fitting – ¼" barbed type, 316 stainless steel.
- Tamper-resistant stroke control.

LOCTITE® EQ VA26 Dispense Valve – 50 Bar

IDH: 1960414



The perfect dispensing valve to complement our LOCTITE® Benchtop High Pressure Dispenser for 300 ml cartridges. High precision, double-acting dispense valve that is used to dispense medium- to high-viscosity silicones, MS polymers and urethane products.

Features:

- Lightweight and durable – can be mounted or omfortably handheld.
- Handles high viscosity adhesives up to 1,000,000 cP.
- Bubble-free, no-drip dispensing with suck-back control.
- High-resolution stroke adjustment.
- Double-acting – air to open/air to close for precision dispensing.

LOCTITE® High Pressure Dispense Valve – 150 Bar

IDH: 1153502

Our top-of-the-line high pressure stainless steel dispense valve with doubleacting valve actuation. It also can be used with our LOCTITE® Benchtop High Pressure Dispenser or with pail and drum pump applications.

Features:

- Stainless steel valve ensures long-term, durable dispensing performance.
- Working fluid pressure up to 2,175 psi to accommodate high viscosity adhesives.
- Bubble-free, no-drip dispensing with positive needle valve shutoff.
- High resolution stroke adjustment.
- Double-acting open/close valve provides high level of dispensing precision.

LOCTITE® Brand Valve & Pump Fluid Compatibility Chart

PRODUCT	LOCTITE® EQ VA10 Micro Diaphragm Valve	LOCTITE® Light Cure Dispense Valve	LOCTITE® Cyanoacrylate Dispense Valve	LOCTITE® EQ VA15 Diaphragm Valve	LOCTITE® Micro Needle Valve
IDH Numbers	1611449	98009	98013	1730181	98084
Accelerators	✓	✓	✓	✓	
Acrylics	✓	✓		✓	✓
Activators	✓	✓	✓	✓	
Anaerobics		✓	✓		
Anaerobic Gasketing					
Cyanoacrylates	✓		✓	✓	
Inks	✓	✓	✓	✓	✓
Lubricants	✓			✓	
Modified Silanes					
Nonabrasive Greases	✓			✓	
Oils	✓	✓	✓	✓	
One-Part Epoxies	✓			✓	
Paints	✓	✓	✓	✓	
Primers	✓	✓	✓	✓	
Reagents		✓	✓	✓	
Silicones	✓			✓	
Solvents	✓	✓	✓	✓	
UV & Light Cure Fluids	✓	✓		✓	✓
UV Anaerobics		✓			
Water	✓	✓	✓	✓	✓

LOCTITE® Brand Valve & Pump Fluid Compatibility Chart

PRODUCT	LOCTITE® Diaphragm Valve	LOCTITE® Stationary Applicator Valve	LOCTITE® Spray Valve	LOCTITE® Poppet Valve	LOCTITE® EQ VA26 Dispense Valve – 50 Bar	LOCTITE® High Pressure Dispense Valve – 150 Bar
IDH Numbers	97135 / 97136	97113 / 97114	98520	986300	1960414	1153502
Accelerators			✓			
Acrylics	✓	✓		✓		
Activators			✓			
Anaerobics	✓	✓		✓		
Anaerobic Gasketing				✓		
Cyanoacrylates	✓	✓				
Inks	✓	✓	✓			
Lubricants		✓	✓	✓	✓	✓
Modified Silanes					✓	✓
Nonabrasive Greases				✓		✓
Oils	✓	✓			✓	
One-Part Epoxies		✓		✓		✓
Paints		✓	✓			
Primers			✓			
Reagents			✓			
Silicones					✓	✓
Solvents			✓			
UV & Light Cure Fluids	✓	✓				
UV Anaerobics	✓	✓				
Water	✓		✓			

PU20 Digital Peristaltic Dispenser

IDH: 2265279

The LOCTITE® PU20 Digital Peristaltic Dispenser is a reliable and effective volumetric dispenser for single-component, low-viscosity adhesives. This dispenser is electro-mechanically operated and does not require the use of an air source. Recommended for use with adhesives packaged in 50 ml or smaller bottles.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN CA LC

FEATURES:

- Precise volumetric dispensing of LOCTITE adhesives from small bottles.
- Air-free dispensing eliminates air in product.
- Digital speed adjustment with vacuum suck-back.
- "Teach In" and program memory-saving function.

Pro Pump Handheld Dispenser

IDH: 2564842

The LOCTITE Pro Pump Handheld Dispenser is a bottle-mounted adhesive dispenser that can be used with 50 ml or 250 ml bottles of LOCTITE anaerobic adhesives, creating a complete dispensing system. The ergonomic design allows the user to deliver a drop of adhesive with a single pull of the trigger. The Pro Pump Handheld Dispenser enables more accurate and consistent application while eliminating waste and mess.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN

FEATURES:

- Turns a bottle of adhesive into a dispensing system.
- Easy to set up and easy to use.
- Compatible with all LOCTITE anaerobic threadlockers and retaining compounds.
- Eliminates spills, waste, and mess.

Medical Device Designer Selects Adhesive & Semi-Automated Equipment for a Consistent, High-Quality Process.

CUSTOMER CHALLENGE:

A designer of a new medical testing device was seeking an assembly solution and process that would be simple to implement, accurate, and reliable. Several assembly methods were under consideration including ultrasonic welding, mechanical fastening, and adhesives.

HENKEL SOLUTION/BENEFITS:

A **LOCTITE Medical Device Grade Instant Adhesive** applied using the **LOCTITE PU20 Digital Peristaltic Dispenser** was selected. The combination equipment and adhesive solution met the designer's requirements with the following benefits:

- Simple, easy to implement (minimal worker training)
- Consistent and repeatable process (accurate for every part)
- Increased reliability (volumetric dispensing of adhesive)

Photo representative only, not actual application.

Telecommunication Manufacturer Improves Field Reliability with a Simple Adhesive Application Solution.

CUSTOMER CHALLENGE:

A manufacturer of exterior telecommunication boxes was experiencing field failures due to corrosion of the fasteners used to assemble the boxes. The boxes needed to be sealed from the elements, but also repairable in the field.

HENKEL SOLUTION/BENEFITS:

The use of the **LOCTITE Pro Pump** to apply **LOCTITE Thread Sealant** was the solution. The combination equipment and adhesive solution was quick and easy to implement and yielded the following benefits:

- Ease of use (simple, manual application)
- Consistent/repeatable application (reliability improvements)
- Neat appearance (no excess sealant)

Photo representative only, not actual application.

Digital Syringe Dispenser

IDH: 883976

The LOCTITE® Digital Syringe Dispenser is a semi-automatic dispensing system designed to dispense LOCTITE adhesives and fluids packaged in 3, 5, 10, 30, and 55 ml syringes, and 300 ml cartridges. The unit has digital timing control for increased precision over typical pressure/time systems.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN CA LC SI AC

FEATURES:

- Cost-effective for dispensing LOCTITE adhesives in syringes.
- Simple, easy operation.
- Vacuum suck-back can effectively control product dripping or stringing.
- Easily integrates with other LOCTITE equipment.

Medical Device Manufacturer Reduces Scrap & Increases Throughput with a Fast & Effective Light-Cure Process.

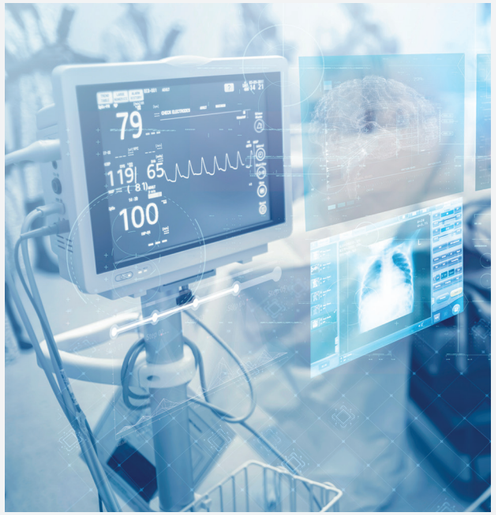
CUSTOMER CHALLENGE:

A manufacturer of a medical monitoring device was experiencing numerous challenges with their manual, room-temperature curing assembly process, ranging from worker fatigue due to the manual process, to variable quality of the end device due to inconsistencies
in adhesive application.

HENKEL SOLUTION/BENEFITS:

A **LOCTITE Medical Device Grade Light-Cure Acrylic Adhesive** packaged in a 30 ml syringe, applied using the **LOCTITE Digital Syringe System,** and cured using the **LOCTITE CL40 LED Spot-Curing System,** was the solution. The combination equipment and adhesive resolved the manufacturer's challenges with the following benefits:

- Rapid light-cure (reduced work-in-process and increased throughput)
- Improved worker satisfaction (semi-automated application reduced fatigue)
- Reduced scrap rate (improved reliability and reduced cost)



HD14 Handheld Manual Dual-Cartridge Dispensers

IDH: 2693822 (200 ml), 2693823 (400 ml)

The LOCTITE HD14 Handheld Manual Dual-Cartridge Dispensers are designed for the manual dispensing of two-component adhesive products packaged in 200 ml or 400 ml cartridges. The dispensers are compatible with all standard product ratios.

COMPATIBLE ADHESIVE TECHNOLOGIES:

SI AC 2K

FEATURES:

- Cost-effective, handheld manual dispensing of LOCTITE 200 ml and 400 ml two-part adhesives.
- Compatible with various mix ratio LOCTITE adhesives.
- Conversion kit for 1:1, 2:1, 4:1, and 10:1 is included with each dispenser.

HD14 Handheld Pneumatic Dual-Cartridge Dispensers

IDH: 2693824 (200 ml), 2693825 (400 ml)

The LOCTITE HD14 Handheld Pneumatic Dual-Cartridge Dispensers are designed for the pneumatic dispensing of two-component adhesive products packaged in 200 ml or 400 ml cartridges. The dispenser is compatible with all standard product ratios and offers improved consistency over manual options.

COMPATIBLE ADHESIVE TECHNOLOGIES:

SI AC 2K

FEATURES:

- Cost-effective, handheld pneumatic dispensing of LOCTITE 200 ml and 400 ml two-part adhesives.
- Compatible with various mix ratio LOCTITE adhesives.
- Conversion kit for 1:1, 2:1, 4:1, and 10:1 is included with each dispenser.

50 ml Dual-Cartridge Manual Applicator

IDH: 267452

The LOCTITE® 50 ml Dual-Cartridge Manual Applicator is a handheld, manually operated meter mix dispenser. The dispenser provides a convenient, cost-effective method to apply adhesives and sealants with minimal waste. The dispensers are compatible with 1:1 and 2:1 mix ratio products, as well as products packaged in 10:1 B-Style cartridges.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AC 2K

FEATURES:

- Cost-effective, handheld manual dispensing of LOCTITE 50 ml two-part adhesives.
- Compatible with various mix ratio LOCTITE adhesives.
- Kit includes 1:1, 2:1, and 10:1 plungers.

300 ml Single-Cartridge Handheld Dispensers

IDH: 1093940 (manual), 1714379 (pneumatic)

The LOCTITE 300 ml Cartridge Applicators are designed for use with sealants and adhesives packaged in 300 ml (10.3 oz.) cartridges. These professional-quality, high-performance applicators are suitable for a broad range of single-component, cartridge-based adhesives and sealants.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN CA SI AC

FEATURES:

- Cost-effective, handheld dispensing of LOCTITE 300 ml adhesive cartridges.
- Manual and pneumatic configurations.
- Simple, quick operation.
- Durable construction.

Two-Component Dispensing – Automatic Dual Cartridge

LOCTITE® EQ MM10 50 ml Dual Cartridge Dispenser, for 4:1, 10:1 ratio, B-style mix nozzles

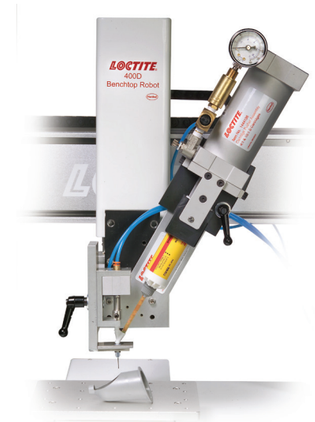
IDH: 1633366

LOCTITE® EQ MM10 50 ml Dual Cartridge Dispenser, for 1:1, 2:1 ratio, A-style mix nozzles

IDH: 1633364

LOCTITE® EQ MM10 50 ml Dual Cartridge Dispenser, for 1:1, 2:1 ratio, B-style mix nozzles

IDH: 1633365



The LOCTITE® 50 ml Dual Cartridge Dispenser, when used in conjunction with any LOCTITE Adhesive Dispensing Robot (sold separately) system, provides a total processing solution for applying small beads or drops. The dispenser also includes a unique, patented anti-drip valve. This disposable valve connects to the end of the mix nozzle and provides shutoff directly at the dispense tip, allowing immediate and crisp fluid on/off control. The dispenser mounts easily to the robot and can be programmed for any 3-axis application. It can also be used as a stationary dispenser with the use of a LOCTITE Single Function Controller (IDH 97101).

Features:

- Independent cartridge pressure and actuation controls to fine-tune adhesive flow rate.
- Lightweight design; able to be used on any LOCTITE Adhesive Dispensing Robot or as a stationary applicator.
- Dispenses adhesives up to 200,000 cP viscosities.
- Includes Dispense Needle Holder to ensure repeatable needle positioning shot after shot.
- All pneumatic operation.

Bottle Dispensing

LOCTITE® 50 ml / 250 ml Hand Pumps

IDHs: 97001 and 98414

Portable, precision, bottle-top applicators that thread directly onto any 50 ml or 250 ml bottle of anaerobic product.

Features:
- Adjustable positive displacement, 0.01 ml to 0.04 ml of product.
- Allows user to control amount and positioning of the adhesive.
- Converts product package into a portable dispenser.
- Applicator nozzle accepts a variety of dispensing needles.
- Bottle stand greatly improves 50 ml bottle stability.

Syringe Dispensing

LOCTITE® 10 ml Gel CA Syringe Dispenser

IDH: 1233800

The 10 ml Gel CA Syringe Dispenser is a handheld, manually operated dispenser for any product packaged in 10 ml syringes. This dispenser provides a convenient, cost-effective method to apply product.

Features:
- Pistol configuration for ease of application.
- Easy syringe loading.
- Smooth dispensing.
- Lightweight – only 120 g.

LOCTITE® 30 ml Manual Syringe Applicator

IDH: 1544934

Top-choice, handheld, manually operated dispenser.

Features:
- Pistol configuration for ease of application.
- Full-hand trigger minimizes operator fatigue.
- Easy syringe loading.
- Smooth dispensing.

LOCTITE® 50 ml Dual Cartridge Manual Applicators

IDHs: 98472 and 1034026

Cost-effective applicators to apply two-part products in 50 ml cartridges.

LOCTITE® 50 ml Dual Cartridge Pneumatic Applicator

IDHs: 97042 and 1493310

Pneumatic solution for higher viscosity products.

Features:
- Lightweight, well-balanced design for easy use.
- Versatile cartridge holder accepts dual 50 ml cartridges with 1:1, 2:1 and 10:1 ratios.

LOCTITE® Electric Rotorspray

IDH: 135557

LOCTITE Rotorspray Systems are designed to apply adhesives and sealants to the interior cylindrical surfaces of workpieces. The special design of the drive assembly and rotor housing ensures that the Rotorspray is completely sealed to prevent contamination with adhesive.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN

FEATURES:

- Application of LOCTITE adhesives to interior cylindrical surfaces.
- Integrates directly with LOCTITE valves and controllers.
- Multiple size spinners available for a variety of applications.

Commercial Appliance Electric Motor Improved with Adhesive Sealing Solution.

CUSTOMER CHALLENGE:

A commercial appliance manufacturer was challenged with the assembly of electric motors where complete sealing, a neat appearance, and a high throughput were required.

HENKEL SOLUTION/BENEFITS:

The use of a **LOCTITE Anaerobic Adhesive/ Sealant** in combination with the **LOCTITE Rotorspray Applicator** was the solution. The **LOCTITE Rotorspray Applicator** applies the adhesive/sealant to the interior diameter of the rotor with the following benefits:

- Uniform application (complete seal)
- Neat appearance (no excess adhesive/sealant)
- Automated process (increased productivity and improved reliability)

Photo representative only, not actual application.

Pro Pump Handheld Dispenser

IDH: 2564842

The LOCTITE® Pro Pump Handheld Dispenser is a bottle-mounted adhesive dispenser that can be used with 50 ml or 250 ml bottles of LOCTITE anaerobic adhesives, creating a complete dispensing system. The ergonomic design allows the user to deliver a drop of adhesive with a single pull of the trigger. The Pro Pump Handheld Dispenser enables more accurate and consistent application while eliminating waste and mess.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN

FEATURES:

- Turns a bottle of adhesive into a dispensing system.
- Easy to set up and easy to use.
- Compatible with all LOCTITE anaerobic threadlockers and retaining compounds.
- Eliminates spills, waste, and mess.

VOLUMETRIC DISPENSE SYSTEMS

PU20 Digital Peristaltic Dispenser

IDH: 2265279

The LOCTITE PU20 Digital Peristaltic Dispenser is a reliable and effective volumetric dispenser for single-component, low-viscosity adhesives. This
dispenser is electro-mechanically operated and does not require the use of
an air source. Recommended for use with adhesives packaged in 50 ml or smaller bottles.

COMPATIBLE ADHESIVE TECHNOLOGIES:

AN CA LC

FEATURES:

- Precise volumetric dispensing of LOCTITE adhesives from small bottles.
- Air-free dispensing eliminates air in product.
- Digital speed adjustment with vacuum suck-back.
- "Teach In" and program memory-saving function.

RC15 Compact Rotor Pump System

The LOCTITE Rotor Pump System is a volumetric displacement system that provides a high level of repeatability and accuracy for bead, drop, or potting applications. The system can also be used with the LOCTITE Electric Rotorspray.

RC15 Compact Rotor Pump Controller

IDH: 1880232

The LOCTITE RC15 Pump Controller is designed for the precise control of the Compact Micro Rotor Pump Dispenser 1.0 and the Compact Rotor Pump Dispenser 4.0. Three (3) programs can be stored in the RC15 Pump Controller for different dispensing applications. There are three (3) different modes of operation (Quantity, Time, Start/Stop), which can be set up easily using the touch screen.

Compact Micro Rotor Pump 1.0

IDH: 1741601

The LOCTITE Compact Micro Rotor Pump Dispenser 1.0 applies LOCTITE adhesives out of a reservoir with high repeatability. Ideal for small drop and bead dispensing, delivering a flow rate of up to 1.5 ml/min. This volumetric dispenser is a rotating displacement system and consists of a rotor and stator. This Rotor Pump requires the RC15 Rotor Pump Controller to form a complete dispensing system.

Compact Rotor Pump 4.0

IDH: 1196160

The LOCTITE Compact Rotor Pump Dispenser 4.0 applies LOCTITE adhesives out of a reservoir with high repeatability. Ideal for small to medium drop and bead dispensing, delivering a flow rate of up to 6 ml/min. This volumetric dispenser is a rotating displacement system and consists of a rotor and stator. This Rotor Pump requires the RC15 Rotor Pump Controller to form a complete dispensing system.

COMPATIBLE ADHESIVE TECHNOLOGIES:

FEATURES:

- Specifically designed for volumetric dispensing of dots and beads of LOCTITE light-cure and anaerobic adhesives.
- Capable of dispensing low- to high-viscosity adhesives.
- Multiple pump sizes available dependent on flow rate requirements.
- Easy integration with LOCTITE reservoirs and controllers.

LOCTITE® Dual Rotor Pump System

The LOCTITE® Dual Rotor Pump Dispense System is a rotating volumetric displacement system that provides precise application of LOCTITE two-part adhesives from product reservoirs, pail pumps, or a dual cartridge pusher. The MM25 Dual Rotor Pump can apply LOCTITE products such as 2-part MMAs, epoxies, polyurethanes, and silicones with a high level of repeatability and accuracy. Designed for use with LOCTITE benchtop robots, or can integrate into any stationary work cell.

LOCTITE® MM25 Dual Rotor Pump

IDH: 1774437

Features:

- Product viscosities up to 200,000 mPas.
- Flow rate is proportional to speed and electronically controlled.
- Reversible direction of flow (suck back) allows for exact stoppage of product flow.
- Variable Ratio System.
- Positive Displacement: Dispense quantities are not affected by external process changes (temperature, viscosity, etc.)

LOCTITE® Dual Rotor Pump Controller

IDH: 1533495

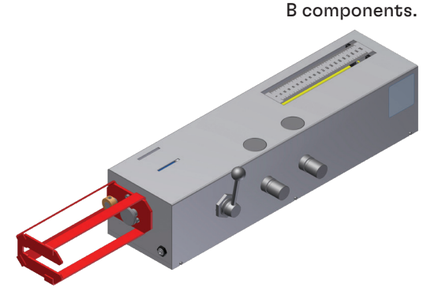
Features:

- Provides a wide range of options for adjusting the desired quantity of product to be dispensed.
- All production data can be stored on an SD card and retrieved at any time.
- A graphical user interface is provided for intuitive operator interaction.
- For inline manufacturing, status messages (ready, empty, fault) can be analyzed by a higher ranking controller.

LOCTITE® MM31 Dual Cartridge Pusher

IDH: 1845696

Cartridge reservoir for dual rotor pump with independent pressure control for A and B components.



AUTOMATED ROBOTIC SYSTEMS

LOCTITE® Automated Robotic Dispensing Systems are cost-effective solutions designed to simplify the dispensing of adhesives and sealants onto various surface configurations, ranging from simple to complex. Dispensing Robots allow manufacturers to repeatedly and reliably dispense patterns of liquid materials on a programmed basis, resulting in improved process efficiencies, minimal material waste, and reduced manufacturing costs. Automated dispensing systems are offered in multiple configurations to meet all your process needs.

WHY USE A ROBOTIC DISPENSING SYSTEM?	BENEFITS OF ROBOTIC DISPENSING
Precision Application	Robotic Dispensing ensures that adhesive is applied in the correct location on the part.
Repeatability	Dispensing Robots will dispense in the same location every time, reducing part-to-part variation typically seen in manual processes.
Complexity	Robots are capable of consistently applying beads of adhesive in difficult shapes and patterns, which may not be possible via manual application.
Speed	High-speed dispensing can be achieved while still maintaining performance requirements.
Quality	A properly-controlled dispensing process will minimize waste/scrap, while ensuring performance, aesthetics, and the overall quality of the assembled part.
Ease of Installation	Dispensing Robots are suitable for all production environments, integrate directly with other LOCTITE equipment, require minimal operator dependency, and are offered in multiple configurations to meet different process needs.

RB40 Dispensing Robots

The LOCTITE® RB40 Benchtop Dispensing Robots are available in four ranges of operation from 200 x 200 x 50 mm up to 500 x 500 x 100 mm (X,Y,Z) and have features and accessories that are custom-tailored for adhesive dispensing processes. These benchtop robots have 3-axis control, and each robot has an integral I/O connector for external light curtain (sold separately) or external E-stop integration. The Teach Pendant, dispensing equipment, cables, and mounting hardware must also be purchased separately.

RB40 200 D-Series Benchtop Robot

IDH: 2104801

The LOCTITE RB40 200 D-Series Dispensing Robot has a **200 x 200 x 50 mm** range of operation (X,Y,Z), and has features and accessories that are custom-tailored for adhesive dispensing processes.

RB40 300 D-Series Benchtop Robot

IDH: 2104799

The LOCTITE RB40 300 D-Series Dispensing Robot has a **300 x 300 x 100 mm** range of operation (X,Y,Z), and has features and accessories that are custom-tailored for adhesive dispensing processes.

RB40 400 D-Series Benchtop Robot

IDH: 2104795

The LOCTITE RB40 400 D-Series Dispensing Robot has a **400 x 400 x 100 mm** range of operation (X,Y,Z), and has features and accessories that are custom-tailored for adhesive dispensing processes.

RB40 500 D-Series Benchtop Robot

IDH: 2103369

The LOCTITE RB40 500 D-Series Dispensing Robot has a **500 x 500 x 100 mm** range of operation (X,Y,Z), and has features and accessories that are custom-tailored for adhesive dispensing processes.

COMPATIBLE ADHESIVE TECHNOLOGIES:

FEATURES:

- Designed for adhesive dispensing within a working area up to 500 mm x 500 mm x 100 mm.
- Integrated solution—plug-and-play with LOCTITE equipment solutions and accessories.
- Easy to program via Teach Pendant, and stores up to 100 programs.
- A wide variety of mounting hardware is available.

Sensor Manufacturer Implements Semi-Automated Adhesive Application Process to Improve Quality & Reliability.

CUSTOMER CHALLENGE:

A sensor manufacturer was manually applying LOCTITE Instant Adhesives onto small sensors for attachment to an aluminum plate. The process was challenged with consistency, accuracy, and contamination issues.

HENKEL SOLUTION/BENEFITS:

A combination assembly automation solution, including a **LOCTITE RC50 Integrated Dispenser**, **VA40 CA Valve**, and **RB40 300 D-Series Robot,** was developed to meet the assembly requirements and deliver the following benefits:

- Reduced adhesive and manual labor usage (cost savings)
- Improved quality and reliability (accurate, repeatable dispense)
- Increased throughput (fast application process)

Photo representative only, not actual application.

LED Lighting Manufacturer Selects Adhesive & Automated Equipment for Rapid Process Time & High-Quality.

CUSTOMER CHALLENGE:

An LED manufacturer was designing a new LED light fixture. The assembly solution needed to provide a complete seal of the components, as well as allow for rapid manufacturing in order to keep up with market demand.

HENKEL SOLUTION/BENEFITS:

A semi-automated adhesive application and curing station was the solution. A **LOCTITE Light-Cure Acrylic Adhesive** is dispensed using the **LOCTITE RC50 Integrated Dispenser**, **Light-Cure Valve** and **RB40 500 D-Series Robot**. This system enables rapid and accurate adhesive application to the various complex geometries, which are then cured using the **LOCTITE CL42 LED Flood-Curing System**. This total solution delivers the following benefits:

- Improved quality and reliability (accurate, repeatable dispense)
- Increased throughput (fast application and cure process)
- Cost savings (labor and failure rate reduction)

Photo representative only, not actual application.

GENERAL-PURPOSE APPLICATORS

LOCTITE® Manual Handheld Applicator

IDH: 97111

Our versatile yet cost-effective pressure time dispense valve with fingertip dispense activation control.

LOCTITE® Pneumatic Handheld Applicator

IDH: 97112 – Foot Switch Activated

Step up to pneumatic dispense actuation support with either foot pedal or ergonomic design trigger control.

LOCTITE® Pneumatic Handheld Applicator

IDH: 97116 – Finger Switch Activated

Step up to pneumatic dispense actuation support with either foot pedal or ergonomic design trigger control.

Features of Pneumatic Handheld Applicators:

- Suck-back feature ensures accuracy and control.
- Dispenses products up to 15,000 cP with ¼ in. feed line (standard).
- Dispenses products up to 80,000 cP with ⅜ in. feed line (optional).
- Operational with manual, semiautomatic and automatic controllers.

LOCTITE® Brand Handheld Dispensing Valve Fluid Compatibility Chart

PRODUCT	LOCTITE LV Handheld Applicator	LOCTITE Manual Handheld Applicator	LOCTITE Pneumatic Handheld Applicator	LOCTITE Pneumatic Handheld Applicator	LOCTITE Vari-Drop™ Applicator
IDH Number	97130	97111	97112	97116	97131 / 97132
Accelerators	✓	✓	✓	✓	✓
Acrylics		✓	✓	✓	✓
Activators	✓	✓	✓	✓	✓
Anaerobics	✓	✓	✓	✓	✓
Cyanoacrylates	✓				✓
Inks	✓	✓	✓	✓	✓
Oils		✓	✓	✓	✓
Paints		✓	✓	✓	✓
Primers	✓	✓	✓	✓	✓
Reagents	✓	✓	✓	✓	✓
Solvents	✓				✓
UV & Light Cure Fluids		✓	✓	✓	✓
UV Anaerobics		✓	✓	✓	✓
Water	✓				

LOCTITE® EQ VA20 Volumetric Valve

IDH: 97111

The LOCTITE® EQ VA20 Volumetric Valve is a positive displacement metering valve that dispenses a precise volumetric drop of adhesive with each cycle. The EQ VA20 is designed with a flooded chamber and a single check valve that allows for quick priming and minimizes the need for re-priming. The priming system uses a patented valve design that improves the speed and reliability of priming. The innovative displacement rod and seal of the VA20 design provide long dispensing life before rebuild is needed. The LOCTITE EQ VA20 is specifically designed to dispense drops of LOCTITE Light Cure Adhesives with precise dosing in the range of 1.5 to 12 microliters.

Features:

- **Volumetric Displacement** – Independent of external factors such as viscosity and temperature.
- **Dosing Range** – 1.5 to 12 microliters.
- **Cycle Rate** – 180 cycles per minute.
- **Long-Life Seal Design**
  - Estimated life > 1 million cycles.
  - Energized seal does not require routine adjustment.
  - Low cost of ownership.
- **Easy Setup**
  - Specifically designed for simple, no-mess priming.
  - Does not lose prime during operation.
- **Compact Size**
  - 0.75" x 6.0" long.
  - Stackable at 0.75" centers.
- **Fluid Body Material is 316 Stainless Steel**

LOCTITE® Dial-A-Seal® Applicator

IDH: 998400

The LOCTITE® Dial-A-Seal® Applicator is a touch-actuated, all-pneumatic applicator for dispensing high viscosity LOCTITE product onto threaded pipe fittings and nipples. The system has a quick turn turret that is equipped with cavities for 1⁄16, 1⁄8, 1⁄4, 3⁄8, 1⁄2, 3⁄4 and 1 inch male pipe threads. The unit accepts 50 ml or 250 ml tubes or 1 liter wide mouth bottles. The product dispense quantity can be adjusted with a rear adjustment knob. The upper limit per dispense cycle is 0.7 ml. It is recommended specifically for applying LOCTITE PST® Thread Sealants, LOCTITE Vibra- Seal®, and LOCTITE Anti-Seize products.

Features:

- Applicator is fed directly from a 50 ml tube, 250 ml tube or 1 liter bottle.
- A quick turn turret is equipped with cavities for 1⁄16, 1⁄8, 1⁄4, 3⁄8, 1⁄2, 3⁄4 and 1 in. male pipe threads.
- Up to 0.7 ml of product can be dispensed per shot.
- Adjustable dispense volume.
- Suggested settings

Theory of Operation

A turret head with a cavity for each size of pipe thread is attached to the output of an air actuated, positive displacement pump. The operator presses a fitting down into the correct cavity. The downward motion of the turret depresses a switch that actuates the pump. A metered amount of material is dispensed onto the part.

LOCTITE® EQ CL15 UV Wand Systems

IDH: 1661548

The LOCTITE® EQ CL15 Wand Systems use a 100 watt high-pressure mercury arc lamp with a universal power supply and a liquid-filled light wand. They can be operated manually or in the timed mode and are capable of interfacing with a PLC controlled circuit.

Features:

- Powerful mercury arc lamp provides up to 15 W/cm^2.*
- Manual, timed or cycle shutter operation.
- Complete cycle control – settable parameters include:
  - UV exposure time (shutter open).
  - Dwell time (shutter closed).
  - Number of cycles (continuous cycling).
- “Lamp On” is indicated by relay contact output.
- Can be operated from an external PLC.
- Small footprint and lightweight. (7½ lbs.)
- Shutter is operated by a reliable rotary solenoid.
- Lamp is disabled if the enclosure lid is removed.
- Light guide interlock safety switch prevents accidental UV exposure if the light guide is not installed. Internal dichroic mirror minimizes the transmission of heat caused by “waste energy,” while allowing critical UV light to pass.
- Provides excellent depth-of-cure capabilities due to its high UV output.
- Ideal for interface with automated assembly lines via the dry-contact closure 9-pin connector located on rear project.

Light Guide Options – UV Wands

Description	Dimensions	IDH Numbers		
		Single Pole	2 Pole	4 Pole
Standard	3 mm x 1000 mm	N/A†	983684	98597
	5 mm x 1000 mm	983677	N/A†	N/A†
	5 mm x 1500 mm	951681	N/A†	N/A†
UVC§	3 mm x 1000 mm	N/A†	352194	N/A†
	5 mm x 1000 mm	329278	N/A†	N/A†
	5 mm x 1500 mm	782189	N/A†	N/A†

§ Enhanced UVC wands require the removal of the filter inside the CL15 system in order to optimize tack-free surface cure. (See Equipment Manual for details.)

† Multi-pole guides are only available with 3 mm diameter poles.

LED LIGHT-CURING SYSTEMS

Henkel offers innovative LOCTITE® LED Light-Curing Systems that provide high power, portability, continuous duty, and long life. A wide range of systems are available—handheld point, spot wand, and flood systems—offering maximum flexibility for any application. These light sources are optimized for curing our extensive line of UV/Visible light-curing adhesive products, to provide optimal solutions for nearly every process need.

Key benefits of LED-curing systems versus traditional bulb technology include:

- Long life – Up to 20,000 hours of operation (10x longer than typical UV bulbs) with minimal decay over time.
- Environmental benefit (no mercury).
- Instant on/off – No warm-up like traditional UV systems.
- Low maintenance cost (no replacement bulbs).
- Zero infrared emissions, reducing part heating (warping) to an absolute minimum.
- Low energy consumption.
- 100% of LED light output is within the usable curing spectrum.
- Low cost of ownership.

Process Control and Monitoring Systems for Light-Curing Systems

Henkel offers a full range of radiometers that can be used with all of our light-curing systems, to ensure the proper intensities are delivered consistently during your production process. These tools are used in conjunction with light-curing equipment to ensure a consistent process and the highest level of quality.

CL30 LED Flood-Curing System

The LOCTITE® CL30 System is a high intensity LED flood system specifically designed to cure LOCTITE light-cure adhesives. The large area flood allows for easy curing of large part assemblies and the LED heads can be stacked in both the X and Y directions, further expanding the curing area if needed. The system can be easily integrated into either benchtop or fully-automated processes.

CL30 LED Flood Quad Controller

IDH: 2257357

The LOCTITE CL30 LED Quad Controller operates up to four (4) LED flood heads. It has three (3) different control modes: 1) Timer Mode: Adjustable from 0 to 999 seconds; 2) Level Mode: To set up intensity percentage for each channel; and 3) Advance Mode: Operator needs to define Step, Intensity, and Time.

CL30 LED Flood Single Controller

IDH: 1359255

This LOCTITE CL30 LED Flood-Curing Single Controller supplies electrical power to one LOCTITE CL30 LED Flood Array Light Source. It controls the time that the LED is kept on during the cure cycle.

CL30 LED Flood Array Light Sources

IDH: 2139182 (365 nm), 2139180 (405 nm)

The LOCTITE CL30 LED Flood Array Light Sources are offered in 365 and 405 nm wavelengths. Each CL30 head is equipped with 144 high-power LEDs and integrated reflectors, providing uniform curing across a wide area (100 mm x 100 mm, or 4 in. x 4 in.). The Light Sources can also be stacked side-by-side in two directions, further expanding the curing area for maximum flexibility.

COMPATIBLE ADHESIVE TECHNOLOGIES:

LC

FEATURES:

- LED flood-curing system offering long-life, energy-efficient, instant on/off performance.
- Simple and easy control of one (1) to four (4) LED flood heads.
- Large cure area (100 mm x 100 mm, or 4 in. x 4 in.).
- Resistive color touch screen for ease of operation.
- LED heads stackable in both X and Y directions.

CL42 LED Flood-Curing System

The LOCTITE CL42 System is a high intensity LED flood system specifically designed to cure LOCTITE light-cure adhesives. The large area flood allows for easy curing of large part assemblies and the LED heads can be stacked side-by-side, further expanding the curing area if needed. The system can be easily integrated into either benchtop or fully-automated processes.

CL42 Dual LED Controller

IDH: 2804957

The LOCTITE CL42 Dual LED Controller operates up to two (2) LED flood heads. It can be operated in a continuous light output mode, or up to a 7-step, programmed output mode, where the light output intensity and time can be programmed for each separate LED head.

CL42 LED Flood Array Light Sources

IDH: 2804955 (365 nm), 2804956 (405 nm)

The LOCTITE CL42 LED Flood Array Light Sources are offered in either 365 or 405 nm wavelengths. Each CL42 head is equipped with 120 high-power LEDs and integrated reflectors, providing uniform curing across a wide area (100 mm x 100 mm, or 4 in. x 4 in.).

CL42 LED Flood Chamber

IDH: 2804959

The LOCTITE CL42 LED Flood-Curing Chamber has been designed especially for use with the LOCTITE CL42 LED Flood-Curing System to cure UV and Visible Light-Cure Adhesives. It consists of a chamber with an adapter for one (1) or two (2) LED light sources, workpiece holder, door safety system, ESD safe door with window, and a controller connection.

Scan QR code to check out our new how-to-use video.

COMPATIBLE ADHESIVE TECHNOLOGIES:

LC

FEATURES:

- LED flood-curing system offering long-life, energy-efficient, instant on/off performance.
- Connect up to two (2) LED flood heads.
- Intensity adjustment for each channel.
- Large cure area (100 mm x 100 mm, or 4 in. x 4 in.).
- LED heads side-by-side stackable.

LOCTITE® 7411-S UV Flood System

IDH: 98413

The LOCTITE® 7411-S UV Flood System is designed for use in a wide range of bonding, potting, tacking and sealing applications. Because of its reliability and simplicity, it is well-suited for most production operations. The LOCTITE 7411-S can accept multiple part sizes. An optional timed control shutter (as displayed) or visible enhanced metal halide lamp are also available.

Features:

- Contains a 4 in., 400 watt metal halide bulb.
- Optimized to emit in the UVA region.
- Typical curing area of 8 in. x 8 in.
- Expected UV lamp life of 1,000 hours with proper handling and maintenance.
- Power supply can be separated from the lamp base assembly.
- Lamp height is adjustable to a maximum height of 11¾ in. from pad.
- Contains a glass filter to reduce the short and medium wavelength lamp emissions.
- The work surface is covered by a special silicone rubber pad to resist UV deterioration and chemical attack.

CL40 LED Spot-Curing System

The LOCTITE® CL40 LED Spot-Cure System offers a cost-effective, high-output solution for all your light-curing needs. Its compact size and multi-channel design offer a high level of flexibility for integrating into most manufacturing processes. The system provides all the benefits of LED technology while maintaining one of the highest intensity outputs available.

CL40 LED Spot Quad Controller

IDH: 2804936

The LOCTITE CL40 LED Spot-Curing Quad Controller operates up to four (4) CL40 LED Light Sources. It can be operated in a continuous light output mode, or up to a 7-step, programmed output mode, where the light output intensity and time can be programmed for each separate LED head.

CL40 LED Spot Light Sources

IDH: 2804938 (365 nm), 2804937 (405 nm)

The LOCTITE CL40 LED Spot-Curing Light Sources are used to cure UV and Visible Light-Cure Adhesives. They are available in 365 nm and 405 nm wavelengths. The light sources include a 6 mm lens and connection cable. Additional lenses (3 mm and 10 mm) are available as accessories.

Scan QR code to check out our new how-to-use video.

COMPATIBLE ADHESIVE TECHNOLOGIES:

LC

FEATURES:

- LED spot-curing system offering long-life, energy-efficient, instant on/off performance.
- Operates up to four (4) LED heads.
- Compact LED head design.
- Intensity adjustment for each channel.
- Resistive color touch screen for ease of operation.

CureJet CL28 LED Spot-Curing System

The LOCTITE CureJet CL28 Spot-Curing System is a high-power, LED Spot-Curing System that offers wider cure area and curing intensity versus typical LED spot devices. It provides the optimum processing speed and cure performance.

CureJet CL28 LED Spot Quad Controller

IDH: 1180632

The LOCTITE CureJet LED Spot-Curing Quad Controller provides power and control for up to four (4) LOCTITE CureJet LED Spot-Curing Light Sources. Time and intensity for each of the four (4) channels can be independently adjusted.

CureJet CL28 LED Spot Single Controller

IDH: 1364033

The LOCTITE CureJet LED Spot-Curing Single Controller provides power and control for one (1) LOCTITE CureJet LED Spot-Curing Light Source. It offers simple and easy timed control of the CureJet Light Source.

CureJet CL28 LED Spot Light Sources

IDH: 2183339 (380 nm), 2183340 (405 nm)

The LOCTITE CureJet CL28 LED Spot-Curing Light Sources are our highest intensity LED spot-curing devices available. With intensities up to 27 W/cm^2, this system delivers extremely high power for all your fast-curing needs. The innovative design combines both high intensity with a significantly wider cure area than most spot systems for maximum performance. The CL28 Light Sources come in 380 nm and 405 nm wavelengths.

COMPATIBLE ADHESIVE TECHNOLOGIES:

LC

FEATURES:

- LED spot-curing system offering long-life, energy-efficient, instant on/off performance.
- Control of one (1) to four (4) LED heads.
- Intensity adjustment for each channel (Quad Controller).
- Available wavelengths of 380 nm and 405 nm.
- Multiple programming modes.
- LED heads side-by-side stackable.

CL32 LED Spot Handheld Light Sources

IDH: 2182210 (365 nm), 2182207 (405 nm)

The LOCTITE® CL32 LED Spot-Curing Light Sources are cost-effective, high-powered, portable LED light sources that offer a high level of flexibility for UV or Visible light-curing needs. The lightweight, compact design helps minimize operator fatigue, while its small size and long focus length make it perfect for applications in hard-to-reach bond areas. Usable as a handheld or stationary mount, this system is perfect for prototyping, scale-up, or full production environments.

COMPATIBLE ADHESIVE TECHNOLOGIES:

LC

FEATURES:

- LED handheld spot-curing system offering long-life, energy-efficient, instant on/off performance.
- High intensity.
- Battery-powered with long battery life.
- Small, compact, ergonomic design.

PROCESS CONTROL & MONITORING SYSTEMS

PM20 UV VIS and UV A/B Radiometers

IDH: 2436352 (UV VIS), 2436353 (UV A/B)

The LOCTITE PM20 UV VIS Radiometer and LOCTITE PM20 UV A/B Radiometer are an industry-first for measurement of LED light-curing devices. The PM20 UV VIS Radiometer is used to measure LED light-curing devices that emit primarily in the Visible wavelengths, while the PM20 UV A/B Radiometer is used to measure LED light-curing devices that emit in the UVA and UVB wavelengths. These radiometers can also be used with curing chambers, conveyors, and flood lamps. Each of the radiometers combines all-in-one exposure, intensity measurement, and profile memory capability into one device.

COMPATIBLE ADHESIVE TECHNOLOGIES:

LC

FEATURES:

- Specifically designed for use with LOCTITE LED and bulb-based curing systems.
- Digital display of peak intensity and total exposure.
- Graphical display of intensity vs. time.
- Exportable data file.

Protective Equipment Manufacturer Speeds Output & Quality of Face Shields with Adhesive Assembly Process.

CUSTOMER CHALLENGE:

A personal protective equipment manufacturer needed to increase throughput of its high-demand face shields. The previous assembly method was slow and required parts to sit to cure sufficiently. The manual process also resulted in variable quality and failure rates.

Photo representative only, not actual application.

HENKEL SOLUTION/BENEFITS:

A **LOCTITE Light-Curing Instant Adhesive** in conjunction with **LOCTITE dispensing and LED curing equipment** provided the design and manufacturing flexibility that was needed. The adhesive is dispensed using a simple, easy-to-use **LOCTITE RC30 Reservoir** and **Vari-Drop® Valve**. The face shields are then cured using the **LOCTITE CL30 Flood System with Quad Controller**. This total solution delivered the following benefits:

- Increased throughput (very rapid cure process)
- High reliability and repeatability (adhesive and equipment performance)
- Improved quality (accuracy in adhesive placement and cure)

Plastic Water Pitcher Manufacturer Implements Adhesive Assembly Process for Design & Manufacturing Flexibility.

CUSTOMER CHALLENGE:

A manufacturer of plastic water pitchers had previously used ultrasonic welding for their assemblies. As new designs came on-line, the manufacturer was required to adapt the welding equipment to accommodate. In addition, to keep up with production requirements, multiple assembly lines and personnel were required.

Photo representative only, not actual application.

HENKEL SOLUTION/BENEFITS:

A **LOCTITE Light-Curing Acrylic Adhesive** is dispensed in the varying patterns required using a **LOCTITE RC40 Integrated Dispenser, Light-Cure Dispense Valve** and **RB40 200-D Series Automated Dispensing Robot**, and then cured with the **LOCTITE CureJet CL28 LED Spot System**. Four **CureJet CL28 LED Spot Heads** are positioned around the part and controlled simultaneously using the **CureJet Quad Controller**. This total solution delivered the following benefits:

- Flexibility in design (the adhesive and equipment can be quickly adapted to changes in design)
- Increased production (rapid cure and semi-automated process)
- Improved quality and reliability (accurate, repeatable dispense)

CONSUMABLES

Henkel offers a comprehensive line of LOCTITE® brand dispense tips and static mix nozzles. All are uniquely tailored to LOCTITE equipment and adhesive technologies, so you have a reliable and complete process in place. A wide variety of tips and mix nozzles are available to meet all of your adhesive dispensing needs.

NEEDLE TIPS

Our high-precision stainless steel, tapered polyethylene and flexible polypropylene dispensing needles/dispensing tips all feature a positive locking, helical thread design to ensure the tip will stay intact during the toughest applications.

MIX NOZZLES

Choosing the correct mix nozzle is a critical step in ensuring your two-part adhesive is properly mixed during the dispense cycle. LOCTITE consumables offer a wide variety of static mix nozzles that have been carefully tested to provide the best performance with our LOCTITE adhesive products. These are offered in many configurations for compatibility with the wide range of cartridge sizes and styles that are available.

HIGH-PRECISION TAPERED DISPENSING NEEDLES & TIPS

1-1/4" DISPENSE NEEDLE, HDPE TAPERED TIP, HELICAL THREAD

Product Image	IDH #	Package Qty.	Hub Color	Gauge
	600941	50	White	14
	600947	1,000		
	600951	50	Grey	16
	600955	1,000		
	600957	50	Green	18
	600958	1,000		
	600959	50	Pink	20
	600971	1,000		
	600972	50	Blue	22
	600973	1,000		
	862838	50	Red	25
	862837	1,000		
	862834	50	Semi-Transparent	27
	862831	1,000		

HIGH-PRECISION STAINLESS STEEL DISPENSING NEEDLES & TIPS

1/2" DISPENSE NEEDLE, HIGH-PRECISION STAINLESS STEEL

Product Image	IDH #	Package Qty.	Hub Color	Gauge
	1244444	50	White	14
	600974	50	Amber	15
	600975	1,000		
	567209	50	Green	18
	600976	1,000		
	600977	50	Pink	20
	600978	1,000		
	601003	50	Purple	21
	601007	1,000		
	600979	50	Blue	22
	600982	1,000		
	806854	50	Orange	23
	806855	1,000		
	601000	50	Red	25
	601001	1,000		
	1255059	50	Light Grey	27
	1255058	1,000		
	1256848	50	Lavender	30
	1256497	1,000		

CONSUMABLES FOR DISPENSING SYSTEMS

STATIC MIX NOZZLES

MIX NOZZLES FOR 10 ML (11 GR) DUAL CARTRIDGES

Product Image	IDH #	Package Qty.	Description
	1434516	5	CA Mix Nozzle, Taper Tip; 2.4" overall length, 2.5 mm inner diameter, 16 elements; 4:1, 10:1 mix ratios – B + S Cartridges.

MIX NOZZLES FOR 50 ML DUAL CARTRIDGES

Product Image	IDH #	Package Qty.	Description
	720225	10	50 ml Mix Nozzle, Luer Tip; 6.0" overall length, 6.35 mm inner diameter, 21 elements; 1:1, 2:1, 4:1 mix ratios.
	720230	10	50 ml Mix Nozzle, Stepped Tip; 6.0" overall length, 6.3 mm inner diameter, 21 elements; 1:1, 2:1, 4:1 mix ratios.
	720227	10	50 ml Square Mix Nozzle, Luer/Stepped Combo Tip; 4.5" overall length, 5.3 mm inner diameter, 24 elements; 1:1, 2:1, 4:1 mix ratios.
	1034575	10	50 ml Mix Nozzle, Stepped Tip; 6.2" overall length, 6.5 mm inner diameter, 20 elements; 1:1, 2:1 mix ratios – B Cartridges.
	1573149	10	50 ml Static Mix Nozzle, Stepped Tip; 6.18" overall length, 6.5 mm inner diameter, 20 elements; 1:1, 2:1 mix ratios.
	1573153	10	50 ml Square Mix Nozzle, Taper Tip; 4.8" overall length, 5.3 mm inner diameter, 24 elements; 1:1, 2:1 mix ratios – B Cartridges.

MIX NOZZLES FOR 200/400 ML DUAL CARTRIDGES

Product Image	IDH #	Package Qty.	Description
	720173	10	200/400 ml Mix Nozzle, Stepped Tip; 7.3" overall length, 6.3 mm inner diameter, 24 elements; 1:1, 2:1 mix ratios.
	720174	10	200/400 ml Round Mix Nozzle, Stepped Tip; 8.8" overall length, 8 mm inner diameter, 24 elements; 1:1, 2:1 mix ratios.
	720177	10	200/400 ml Mix Nozzle, Stepped Tip; 10.9" overall length, 10 mm inner diameter, 24 elements; 1:1, 2:1 mix ratios.
	1084092	10	490 ml Mix Nozzle, Stepped Tip; 11.2" overall length, 10 mm inner diameter, 24 elements; 10:1 mix ratio.
	1084255	10	490 ml Mix Nozzle, Stepped Tip; 9.1" overall length, 8 mm inner diameter, 24 elements; 10:1 mix ratio.
	1573138	10	200/400 ml Mix Nozzle, Stepped Tip; 9.2" overall length, 8.0 mm inner diameter, 24 elements; 1:1, 2:1 mix ratios.
	1573135	10	200/400 ml Mix Nozzle, Stepped Tip; 7.6" overall length, 6.3 mm inner diameter, 24 elements; 1:1, 2:1 mix ratios.
	874905	10	200/400 ml Square Mix Nozzle, Threaded Bell End; 7.3" overall length, 114.5 mm inner diameter, 24 elements; 1:1, 2:1 mix ratios.

HIGH PRECISION STAINLESS STEEL DISPENSE TIPS

1½ Inch Stainless Steel Tips Helical Thread

50 Pack IDH Number	Hub Color	Gauge
98163	White	14
98165	Amber	15
98167	Green	18
98169	Pink	20
98171	Purple	21
98173	Blue	22
98175	Orange	23
98177	Red	25
98179	Light Grey	27

1 Inch Stainless Steel Tips Helical Thread

50 Pack IDH Number	Hub Color	Gauge
98216	White	14
98218	Amber	15
98220	Black	16
98222	Green	18
98224	Pink	20
98226	Purple	21
98228	Blue	22
98230	Orange	23
98232	Red	25
98234	Light Grey	27

45° by ½ Inch Stainless Steel Tips Helical Thread

50 Pack IDH Number	Hub Color	Gauge
98236	White	14
98240	Amber	15
98244	Green	18
98248	Pink	20
98252	Purple	21
98256	Blue	22
98260	Orange	23
98264	Red	25
98268	Light Grey	27

Flexible Dispense Tips

1½ Inch Polypropylene Tips Helical Thread

50 Pack IDH Number	1,000 Pack IDH Number	Hub Color	Gauge
97229	98069	Amber	15
97230	98070	Green	18
97231	98071	Pink	20
97232	98082	Red	25

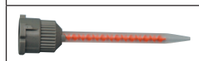
Additional Dispense Tips & Accessories

LOCTITE® Showcase Needle Variety Kit

IDH Number: 98439

This kit contains five each of an assortment of high precision Stainless Steel Tips in various lengths and gauges. Tapered and Flexible Dispense Tips are also included. All Dispense Tips have helical thread Luer-Lok hubs for reliable locking.

LOCTITE® Brand Static Mix Nozzles & Accessories

PRODUCT	IDH Number	Package Quantity	Description
MIX NOZZLES FOR 50 ML DUAL (A STYLE) CARTRIDGES			
	778273 1405182	10 5,000	50 ml Square Mix Nozzle, Luer/Stepped Combo Tip, 3.25" overall length, 5.3 mm inner dimension, 16 elements; 1:1, 2:1 mix ratios.
	720227 826190	10 1,000	50 ml Square Mix Nozzle, Luer/Stepped Combo Tip, 4.5" overall length, 5.3 mm inner dimension, 24 elements; 1:1, 2:1, 4:1 mix ratios.
	720225	10	50 ml Mix Nozzle, Luer Tip, 6.0" overall length, 6.35 mm inner diameter, 21 elements; 1:1, 2:1, 4:1 mix ratios.
	720230 1116241	10 2,500	50 ml Mix Nozzle, Stepped Tip, 6.0" overall length, 6.35 mm inner diameter, 21 elements; 1:1, 2:1, 4:1 mix ratios.
	1145743 1143355	10 2,000	50 ml Mix Nozzle with Integral Needle Adapter, 5.9" overall length, 6.35 mm inner diameter, 20 elements; 1:1, 2:1 mix ratios.
	1259190	10	50 ml Round Mix Nozzle, Luer Tip, 4.7 mm inner diameter, 3.3" long, 16 elements; 1:1, 2:1 mix ratios.
	1334299	100	50 ml Mix Nozzle, Taper Tip, 3.0 mm inner diameter, 17 elements; 1:1, 2:1 – A Cartridges.
MIX NOZZLES FOR 50 ML DUAL (B & S STYLES) CARTRIDGES			
	1573156 1573154	10 1,000	50 ml Square Mix Nozzle, Taper Tip, 3.6" overall length, 5.3 mm inner dimension, 16 elements; 1:1, 2:1 mix ratios – B Cartridges.
	1573153 1573151	10 1,000	50 ml Square Mix Nozzle, Taper Tip, 4.8" overall length, 5.3 mm inner dimension, 24 elements; 1:1, 2:1 mix ratios – B Cartridges.
	1573141 1573142	10 1,000	50 ml Square Mix Nozzle, Taper Tip, 4.8" overall length, 5.3 mm inner dimension, 24 elements; 4:1, 10:1 mix ratios – B + S Cartridges.
	1197606	10	50 ml Mix Nozzle, Taper Tip, 2.4" overall length, 2.5 mm inner diameter, 16 elements; 1:1, 2:1 mix ratios – B Cartridges.
	1434516	5	50 ml CA Mix Nozzle, Taper Tip, 2.4" overall length, 2.5 mm inner diameter, 16 elements; 4:1, 10:1 mix ratios – B + S Cartridges.
	1440017 1826921	100 10	50 ml Mix Nozzle, Taper Tip, 3.0" overall length, 3.2 mm inner diameter, 16 elements; 1:1, 2:1 mix ratios – B Cartridges.
	1329200	100	50 ml Mix Nozzle, Taper Tip, 3.0" overall length, 3.2 mm inner diameter, 16 elements; 4:1, 10:1 mix ratio – B + S Cartridges.
	1440018	100	50 ml Mix Nozzle, Taper Tip, 3.8" overall length, 4.2 mm inner diameter, 16 elements; 4:1, 10:1 mix ratios – B + S Cartridges.
	1573146 1573145	10 1,000	50 ml Mix Nozzle, Stepped Tip, 4.4" overall length, 5.4 mm inner diameter, 16 elements; 1:1, 2:1 mix ratios – B Cartridges.
	1573144 1573143	10 1,000	50 ml Mix Nozzle, Stepped Tip, 5.2" overall length, 6.5 mm inner diameter, 16 elements; 1:1, 2:1 mix ratios – B Cartridges.
	1573149 1573147	10 1,000	50 ml Mix Nozzle, Stepped Tip, 6.2" overall length, 6.5 mm inner diameter, 20 elements; 1:1, 2:1 mix ratios – B Cartridges.
	1034575	10	50 ml Mix Nozzle, Stepped Tip, 6.2" Overall Length, 6.5 mm inner diameter, 20 elements; 4:1, 10:1 mix ratio – B & S Cartridges.

LOCTITE® Brand Static Mix Nozzles & Accessories (Continued)

PRODUCT	IDH Number	Package Quantity	Description
MIX NOZZLES FOR 200 ML & 400 ML DUAL (C STYLE) CARTRIDGES			
	606052 804261	10 1,500	200/400 ml Square Mix Nozzle, Luer/Stepped Combo Tip, 5.0" overall length, 5.3 mm inner dimension, 24 elements; 1:1, 2:1, 4:1 mix ratios.
	720226 848088	10 1,000	200/400 ml Square Mix Nozzle, Stepped Tip, 5.1" overall length, 7.5 mm inner dimension, 24 elements; 1:1; 2:1 mix ratios.
	874905 875472	10 650	200/400 ml Square Mix Nozzle, Threaded Bell End, 114.5 mm inner dimension, 187 mm overall length, 24 elements; 1:1, 2:1 mix ratios.
	720173 1053262	10 2,000	200/400 ml Mix Nozzle, Stepped Tip, 7.3" overall length, 6.3 mm inner diameter, 24 elements; 1:1, 2:1 mix ratios.
	720174 720222	10 1,500	200/400 ml Mix Nozzle, Stepped Tip, 8.8" overall length, 8 mm inner diameter, 24 elements; 1:1, 2:1 mix ratios.
	720177	10	200/400 ml Mix Nozzle, Stepped Tip, 10.9" overall length, 10 mm inner diameter, 24 elements; 1:1, 2:1 mix ratios.
	773794	50	200/400 ml Mix Nozzle, Stepped Tip, 7.4" overall length, 0.188" inner diameter, 32 elements; 1:1, 2:1 and 4:1 mix ratios.
	989518	10	200/400 ml Mix Nozzle, Stepped Tip, 9.0" overall length, 0.188" inner diameter, 48 elements; 1:1, 2:1 and 4:1 mix ratios.
	918088	10	200/400 ml Mix Nozzle, Luer Tip, Slip Luer, 9.5" overall length, 0.25" inner diameter, 32 elements; 1:1 and 2:1 mix ratios.
	1032026 1098256	10 1,200	200/400 ml Mix Nozzle, 11.3" overall length, 8 mm inner diameter, 32 elements; 1:1, 2:1 mix ratios.
	98672	10	200/400 ml Mix Nozzle, Stepped Tip, 14.2" overall length, 9.3 mm inner diameter, 40 elements; 1:1, 2:1 mix ratios.
	98367	1,000	200/400 ml Mix Nozzle, Snap Tip, 9.3" overall length, 9.3 mm inner diameter, 24 elements; 1:1, 2:1 mix ratios.
	243335	6	200/400 ml Mix Nozzle, Stepped Tip, 9.1" overall length, 13 mm inner diameter, 18 elements; 1:1, 2:1 mix ratios – Rapid Rubber.
MIX NOZZLES FOR HIGH PRESSURE METER MIX			
	930705	1,000	200/400 ml Mix Nozzle, Stepped Tip, 10.9" overall length, 10 mm inner diameter, 24 elements; 1:1, 2:1 mix ratios. 15.9 mm bell mouth.
	2210213	1,000	200/400 ml Mix Nozzle, Stepped Tip, 10.9" overall length, 10 mm inner diameter, 24 elements; 1:1, 2:1 mix ratios. 16.7 mm bell mouth.

LOCTITE® Brand Static Mix Nozzles & Accessories (Continued)

PRODUCT	IDH Number	Package Quantity	Description
MIX NOZZLES FOR 200 ML & 400 ML DUAL (F STYLE) CARTRIDGES			
	1573130	10	200/400 ml Square Mix Nozzle, Taper Tip, 5.2" overall length, 5.3 mm inner dimension, 24 elements; 1:1, 2:1 mix ratios – F Cartridges.
	1573133	10	200/400 ml Square Mix Nozzle, Stepped Tip, 5.4" overall length, 7 mm inner dimension, 24 elements; 1:1, 2:1 mix ratios – F Cartridges.
	1573132	10	200/400 ml Square Mix Nozzle, Stepped Tip, 7.1" overall length, 10.7 mm inner dimension, 24 elements; 1:1, 2:1 mix ratios – F Cartridges.
	1573135	10	200/400 ml Mix Nozzle, Stepped Tip, 7.6" overall length, 6.3 mm inner diameter, 24 elements; 1:1, 2:1 mix ratios – F Cartridges.
	1573138 1573136	10 1,000	200/400 ml Mix Nozzle, Stepped Tip, 9.2" overall length, 8 mm inner diameter, 24 elements; 1:1, 2:1 mix ratios – F Cartridges.
	1084255	10	200/400/490 ml Mix Nozzle, Stepped Tip, 9.2" overall length, 8 mm inner diameter, 24 elements; 4:1, 10:1 mix ratios – F Cartridges.
	1084092 1084093	10 900	200/400/490 ml Mix Nozzle, Stepped Tip, 11.2" overall length, 10 mm inner diameter, 24 elements; 4:1, 10:1 mix ratios – F Cartridges.
MIX NOZZLE ADAPTERS			
	720175 970655	10 2,000	Luer-Lok Adapter for 6 mm and 8 mm Stepped Tip Mix Nozzles, allows for Dispense Needle Attachment (10 pack). Mix Nozzles and Dispense Needles sold separately.

LOCTITE® Brand Syringe Accessories

PRODUCT	IDH Number	Description	Contents
	98656 98657 97208 97245	3 ml Syringe Air Line Adapter 5 ml Syringe Air Line Adapter 10 ml Syringe Air Line Adapter 30 ml and 55 ml Syringe Air Line Adapter	2 Air Line Adapters – Common to all part numbers (Syringe Barrel sold separately)
	97207	10 ml Clear Syringe Barrel Kit	20 Barrel Caps, 40 Pistons, 40 Barrels, 40 Barrel Tips
	97244	30 ml Clear Syringe Barrel Kit	10 Barrel Caps, 20 Pistons, 20 Barrels, 20 Barrel Tips
	98314	55 ml Clear Syringe Barrel Kit	5 Barrel Caps, 10 Pistons, 10 Barrels, 10 Barrel Tips
	97263	10 ml Black Syringe Barrel Kit for UV Adhesives	20 Barrel Caps, 40 Pistons, 40 Barrels, 40 Barrel Tips
	97264	30 ml Black Syringe Barrel Kit for UV Adhesives	10 Barrel Caps, 20 Pistons, 20 Barrels, 20 Barrel Tips
	98315	55 ml Black Syringe Barrel Kit for UV Adhesives	5 Barrel Caps, 10 Pistons, 10 Barrels, 10 Barrel Tips
	Various	Clear or Black 3, 5, 10, 30 and 55 ml Piston/Syringe Combination Packages	See page 70 for Syringe and Piston options and IDH numbers.

LOCTITE® Brand Syringe Accessories (Continued)

PRODUCT		Accessory IDH Number	Description	Package Quantity
LOCTITE Pneumatic Syringe Barrel and Piston Kits (Dark Amber Syringes are also available in the same packages. Call 860.571.5174 for special orders.)	Pneumatic Syringe Barrel and Piston	98487	10 ml Syringe Barrel and Piston, Natural	50
		98488	10 ml Syringe Barrel and Piston, Natural	1,000
		98489	10 ml Syringe Barrel and Piston, Black	50
		98490	10 ml Syringe Barrel and Piston, Black	1,000
		98491	30 ml Syringe Barrel and Piston, Natural	50
		98492	30 ml Syringe Barrel and Piston, Natural	500
		98493	30 ml Syringe Barrel and Piston, Black	50
		98494	30 ml Syringe Barrel and Piston, Black	500
		98495	55 ml Syringe Barrel and Piston, Natural	250
		98496	55 ml Syringe Barrel and Piston, Natural	50
		98497	55 ml Syringe Barrel and Piston, Black	50
		98498	55 ml Syringe Barrel and Piston, Black	250

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

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.

NSF International

NON-FOOD COMPOUND

LOCTITE® 222MS™ Threadlocker, Low Strength/Small Screw
LOCTITE® 242® Blue Threadlocker, Medium Strength
LOCTITE® 262™ Threadlocker, Medium to High Strength
LOCTITE® 290™ Threadlocker, Wicking Grade
LOCTITE® SI 587™ Blue, High Performance RTV Silicone Gasket Maker
LOCTITE® SI 5900® Flange Sealant, Heavy Body RTV Silicone
LOCTITE® SF 7649™ Primer
LOCTITE® LB 8014™ Food Grade Anti-Seize
LOCTITE® LB 8104™ Food Grade Grease
LOCTITE® SF 7070™ ODC-Free Cleaner & Degreaser
LOCTITE® LB 8632™ Clear High Performance Synthetic Grease
LOCTITE® LB 8034™ High Performance Synthetic Grease

STANDARD 51

Superflex® RTV, Silicone Adhesive Sealants Clear

STANDARD 61

LOCTITE® 242® Blue Threadlocker, Medium Strength
LOCTITE® 243™ Blue Threadlocker, Medium Strength
LOCTITE® 263™ Red Threadlocker, High Strength
LOCTITE® 290™ Threadlocker, Wicking Grade
LOCTITE® 518™ Flange Sealant
LOCTITE® 561™ Pipe Sealant
LOCTITE® 565™ Thread Sealant, Controlled Strength
LOCTITE® 567™ Thread Sealant, High Temperature
LOCTITE® 680™ Retaining Compound, Slip Fit/High Strength
LOCTITE® 648™ Retaining Compound
LOCTITE® SF 7649™ Primer
LOCTITE® EA 3463™ 10 Minute Repair Epoxy
LOCTITE® Nordbak® Brushable Ceramic Grey
LOCTITE® PC 7227™ Blue, Nordbak® Brushable Ceramic
LOCTITE® PC 7227™ Gray, Nordbak® Brushable Ceramic
LOCTITE® PC 7228™ White, Nordbak® Brushable Ceramic
LOCTITE® 480™ Instant Adhesive

American Bureau of Shipping (ABS)

LOCTITE® 262™ Threadlocker, Medium to High Strength
LOCTITE® 404® Instant Adhesive, General-Purpose
LOCTITE® 567™ Thread Sealant, High Temperature
LOCTITE® 587™ Blue, High Performance RTV Silicone Gasket Maker
LOCTITE® 620™ Retaining Compound, Slip Fit/High Temperature
LOCTITE® 680™ Retaining Compound, Slip Fit/High Strength
LOCTITE® L PC 7202™ Marine Chocking
LOCTITE® LB 8023™ Marine Grade Anti-Seize

Military Specifications (Mil Spec)

LOCTITE® 220™ Threadlocker, Wicking Grade/Low Strength
LOCTITE® 222MS™ Threadlocker, Low Strength/Small Screw
LOCTITE® 242® Blue 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™ Accelerator
LOCTITE® SI 5040™ RTV Silicone
LOCTITE® SI 5045™ Flange Sealant
LOCTITE® 7452™ Accelerator
LOCTITE® SF 7471™ Primer
LOCTITE® SF 7649™ Primer

Military Specifications (Commercial Item Description)

LOCTITE® 404® Instant Adhesive, General-Purpose
LOCTITE® 406™ Instant Adhesive, Surface Insensitive
LOCTITE® 414™ Instant Adhesive
LOCTITE® 415™ Instant Adhesive
LOCTITE® 416™ Instant Adhesive
LOCTITE® 420™ Instant Adhesive
LOCTITE® 422™ Instant Adhesive
LOCTITE® 430™ Instant Adhesive
LOCTITE® 444™ Instant Adhesive
LOCTITE® 493™ Instant Adhesive
LOCTITE® 495™ Instant Adhesive
LOCTITE® 496™ Instant Adhesive

Federal Institute for Materials Research and Testing, Germany (BAM)

LOCTITE® Thread Sealant for Oxygen Compatible Systems

International Organization for Standardization

ISO 10993 COMPLIANT

LOCTITE® UK M-06FL™ Urethane Adhesive
LOCTITE® UK M-11FL™ 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® 431™ Instant Adhesive
LOCTITE® 435™ Instant Adhesive
LOCTITE® 713™ Medical Device Accelerator
LOCTITE® AA 3201™ Light Cure Adhesive, Polycarbonate/Thermoplastics
LOCTITE® AA 3211™ Light Cure Adhesive, Polycarbonate/Thermoplastics
LOCTITE® AA 3301™ Light Cure Adhesive, Plastic/Metal
LOCTITE® AA 3311™ Light Cure Adhesive, Plastic/Metal
LOCTITE® AA 3321™ Light Cure Adhesive, Plastic/Metal
LOCTITE® AA 3341™ Light Cure Adhesive, Plasticized Substrates
LOCTITE® AA 3345™ Light Cure Adhesive, Glass/Metal
LOCTITE® AA 3381™ Light Cure Adhesive, Flexible/Plastics
LOCTITE® AA 3552™ Light Cure Adhesive
LOCTITE® AA 3553™ Light Cure Adhesive
LOCTITE® AA 3554™ Light Cure Adhesive
LOCTITE® AA 3555™ Light Cure Adhesive
LOCTITE® AA 3556™ Light Cure Adhesive
LOCTITE® AA 3921™ Light Cure Adhesive, Plastic/Metal
LOCTITE® AA 3922™ Light Cure Adhesive, Plastic/Metal
LOCTITE® AA 3924AC™ Light Cure Adhesive, Plastic/Metal
LOCTITE® AA 3926™ Light Cure Adhesive, Plastic/Metal
LOCTITE® AA 3933™ Light Cure Adhesive
LOCTITE® AA 3936™ Light Cure Adhesive
LOCTITE® AA 3942™ Light Cure Adhesive, High Performance/Various Substrates
LOCTITE® AA 3943™ Light Cure Adhesive, High Performance/Various Substrates
LOCTITE® AA 3944™ Light Cure Adhesive
LOCTITE® AA 3971™ Light Cure Adhesive, Plasticized Substrates
LOCTITE® AA 3972™ Light Cure Adhesive, Plasticized Substrates
LOCTITE® AA 3974™ Light Cure Adhesive
LOCTITE® AA 3979™ Light Cure Adhesive
LOCTITE® EA 3981™ Epoxy Adhesive, High Performance/Various Substrates
LOCTITE® EA 3984™ Epoxy Adhesive, High Performance/Various Substrates
LOCTITE® 4011™ Medical Device Instant Adhesive
LOCTITE® 4013™ Medical Device Instant Adhesive
LOCTITE® 4014™ Medical Device Instant Adhesive
LOCTITE® 4031™ Medical Device Instant Adhesive
LOCTITE® 4061™ Medical Device Instant Adhesive
LOCTITE® 4081™ Medical Device Instant Adhesive
LOCTITE® 4161™ Medical Device Instant Adhesive
LOCTITE® 4206™ Medical Device Instant Adhesive
LOCTITE® 4304™ Light Cure Adhesive
LOCTITE® 4305™ Light Cure Adhesive
LOCTITE® 4307™ Light Cure Adhesive
LOCTITE® 4310™ Light Cure Adhesive
LOCTITE® 4311™ Light Cure Adhesive
LOCTITE® 4541™ Medical Device Instant Adhesive
LOCTITE® 4601™ Medical Device Instant Adhesive
LOCTITE® 4851™ Medical Device Instant Adhesive
LOCTITE® 4861™ Medical Device Instant Adhesive
LOCTITE® 4981™ Medical Device Instant Adhesive
LOCTITE® SI 5055™ Silicone Adhesive Sealant
LOCTITE® SI 5056™ Silicone Adhesive Sealant
LOCTITE® SI 5240™ Medical Device Sealant
LOCTITE® SI 5248™ Medical Device Silicone Adhesive
LOCTITE® SF 7451™ Medical Device Accelerator
LOCTITE® SF 7701™ Medical Device Adhesive Primer
LOCTITE® 402™ Instant Adhesive

UL Classified/Listed for U.S.

LOCTITE® 271™ Threadlocker, High Strength
LOCTITE® 515™ Flange Sealant
LOCTITE® 561™ Pipe Sealant
LOCTITE® 565™ Thread Sealant, Controlled Strength
LOCTITE® 567™ Thread Sealant, High Temperature
LOCTITE® SI 5091™ Silicone Potting Compound, High Adhesion
LOCTITE® 5600™ Silicone Sealant
LOCTITE® 5640™ Silicone Potting Compound
LOCTITE® PA 7809FR™ Hot Melt Adhesive, Polyamide
LOCTITE® SI 5606™ Silicone
LOCTITE® UK 3364™ Adhesive
LOCTITE® SI 5611F™ Silicone
LOCTITE® SI 5611S™ Silicone Potting Compound
LOCTITE® EA E-40EXP™ Epoxy
LOCTITE® SI 5604™ Silicone
TEROSON® MS 930™ Adhesive
TEROSON® MS 939™ Sealant

ULC Classified for Canada

LOCTITE® 565™ Thread Sealant, Controlled Strength
LOCTITE® 567™ Thread Sealant, High Temperature

CSA International

LOCTITE® 565™ Thread Sealant, Controlled Strength

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

HAVE A QUESTION NOT ANSWERED HERE?
Henkel Adhesive and Sealant 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 next.henkel-adhesives.com.

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 indentor point under pressure. Different measurement scales are used for different materials depending on how soft or hard the material. The following chart compares three 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
40	–	–	Pink Pearl Eraser	5900®
50	15	–	Rubber Stamp	–
60	–	–	Pencil Eraser	5699™
70	30	–	Rubber Heel	–
80	–	–	Rubber Sole	–
90	45	–	Ice Hockey Puck	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 (kg) = 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
- Centipoise (cP) = 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 R2) 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.

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 to 5	408™	–
Blood	10 to 20	–	290™
Antifreeze	20	406™	–
Motor Oil SAE 10 or Corn Oil	50 to 100	401™	609™
Motor Oil SAE 30 or Maple Syrup	150 to 200	435™	272™
Motor Oil SAE 40 or Castor Oil	250 to 500	4203™	263™
Motor Oil SAE 60 or Glycerin	1,000 to 2,000	403™	243™
Corn Syrup or Honey	2,000 to 3,000	410™	635™
Blackstrap Molasses	5,000 to 10,000	411™	277™/620™
Chocolate Syrup	10,000 to 25,000	454™/455™	545™
Ketchup or Mustard	50,000 to 70,000	409™	–
Tomato Paste or Peanut Butter	500,000	–	567™
Shortening or Lard	1,000,000 to 2,000,000	–	660™
Caulking Compound	5,000,000 to 10,000,000	–	518™
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® 243™ and 263™ Threadlockers.

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.

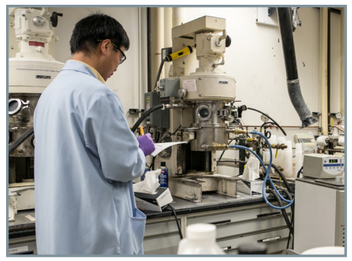
THE ENGINEERING SERVICES GROUP OF HENKEL UNDERSTANDS THE NECESSITY OF PARTNERING WITH MANUFACTURERS AND SHARING THIS EXPERTISE WITH THE INDUSTRY THROUGH COST-EFFECTIVE, CUSTOM-TAILORED PROGRAMS.

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 GAIN 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, our engineers can provide manufacturers with confidence in the durability and longevity of an assembly in the field.

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 Henkel Adhesive and Sealant Specialist to identify and document potential cost savings and process improvements.

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 Reliability Workshop

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

LOCTITE® Modular Training

In-depth Maintenance Workshop over several visits, focusing on Threadlocking, Threadsealing, Gasketing, & Retaining.

LOCTITE® Maintenance Customer Training School

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

LOCTITE® Surface Engineering Workshop

Training on LOCTITE Polymer Composite products.

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.

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A Quick Reference Guide to the Most Common Maintenance Problems

PROBLEM	SOLUTION
Rust, corrosion, galling, or seizing on metal threaded and unthreaded assemblies	Anti-Seize Compounds
Slippery pedestrian/vehicular areas	Anti-Slip Coatings
Damaged conveyor belts	Belt Repair/Urethanes
Fastening and joining	Bonding – Acrylic, Cyanoacrylate, Epoxy & Urethane, Hot Melt
Worn surfaces/damaged parts	Epoxies
Cracked floors, restoring old concrete, bonding to concrete/set anchor bolts, mount equipment	Flooring & Grout
Leaks – gasket, oil, transmission, coolant	Gasketing & Sealing
Friction, heat, or wear between solid metal surfaces	Lubricants
Backlash, key wallowing, spun bearings, shaft alignment, wear	Retaining Compounds
Vibrational loosening	Threadlocking
Leaks – air, hydraulic, fouled valves	Thread Sealing
Worn or corroded surfaces – material handling equipment	Wearing Compounds

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