

Alodine®



LOCTITE®

Multan®



Henkel at Work in the Defense Industry

**Adhesives, Sealants & Surface Treatments
for Military Ordnance, Equipment & Vehicles**



An interactive version of
this guide is available at
www.henkelna.com/defense.

*The interactive version provides links
to additional information and technical
data for each product.*

SECTION I: HENKEL PRODUCTS MEETING MILITARY SPECIFICATIONS

The products listed in Section I are in compliance with the specifications listed. These products do not necessarily represent Henkel's latest technologies and should be selected where Mil Spec approved products are required.

THREADLOCKING						
Product	Mil Specs	ASTM-D5363	Package Size	Item Number	NSN*	
Low Strength	Loctite® 222MS™ Threadlocker/Sealant	Mil-S-46163A Type II Grade M	Group 3 Class 1 Grade 1	10 ml bottle	22221	8030-01-054-3968
				50 ml bottle	22231	8030-01-069-3046
				250 ml bottle	22241	8030-01-055-6126
	Letter Grade EV (079)	Mil-S-22473E Grade EV	Group 1 Class 5 Grade 2	50 ml bottle	07931	8030-00-081-2286
Letter Grade HV (077)	Mil-S-22473E Grade HV	Group 1 Class 6 Grade 2 (Special Only)	50 ml bottle	07731	8030-00-833-9116	
Medium Strength	Loctite® 242® Threadlocker/Sealant	Mil-S-46163A Type II Grade N	Group 3 Class 2 Grade 1	10 ml bottle	24221	8030-01-104-5392
				50 ml bottle	24231	8030-01-014-5869
				250 ml bottle	24241	8030-01-025-1692
	Letter Grade B (085)	Mil-S-22473E Grade B	Group 1 Class 3 Grade 1	50 ml bottle	08531	8030-00-081-9022
	Letter Grade C (084)	Mil-S-22473E Grade C	Group 1 Class 4 Grade 1	50 ml bottle	08431	8030-00-823-7917
Letter Grade CV (083)	Mil-S-22473E Grade CV	Group 1 Class 4 Grade 2	50 ml bottle	08331	8030-00-081-2330	
High Strength	Loctite® 262™ Threadlocker/Sealant	Mil-S-46163A Type II Grade O	Group 3 Class 3 Grade 1	10 ml bottle	26221	8030-01-159-4374
				50 ml bottle	26231	8030-01-142-9830
				250 ml bottle	26241	8030-01-142-3131
	Loctite® 277™ Threadlocker/Sealant	Mil-S-46163A Type I Grade L	Group 2 Class 1 Grade 1	10 ml bottle	21434	8030-01-510-9460
				50 ml bottle	27731	—
				250 ml bottle	27741	8030-01-063-7510
				1 liter bottle	27743	—
	Loctite® 271™ Threadlocker/Sealant	Mil-S-46163A Type I Grade K	Group 2 Class 2 Grade 1	10 ml bottle	27121	8030-00-148-9833
				50 ml bottle	27131	8030-01-158-6070
				250 ml bottle	27141	8030-01-517-1170
				1 liter bottle	27143	—
	Letter Grade AV (087)	Mil-S-22473E Grade AV	Group 1 Class 2 Grade 3	50 ml bottle	08731	8030-00-081-2336
				250 ml bottle	08741	8030-01-013-9306
Letter Grade AVV (086)	Mil-S-22473E Grade AVV	Group 1 Class 2 Grade 4	250 ml bottle	08641	8030-00-466-6723	
Letter Grade D (081)	Mil-S-22473E Grade D	Group 1 Class 2 Grade 2	250 ml bottle	08141	—	
Wicking Grade Low Strength	Loctite® 220™ Threadlocker/Sealant	Mil-S-46163A Type III Grade Q	Group 2 Class 5 Grade 1	10 ml bottle	37388	—
				50 ml bottle	39186	—
				250 ml bottle	22041	—
Letter Grade E (080)	Mil-S-22473E Grade E	Group 1 Class 5 Grade 1	50 ml bottle	08031	8030-00-081-2328	
Letter Grade H (078)	Mil-S-22473E Grade H	Group 1 Class 6 Grade 1	50 ml bottle	07831	8030-00-081-2325	
Wicking Grade Medium Strength	Loctite® 290™ Threadlocker/Sealant	Mil-S-46163A Type III Grade R	Group 2 Class 6 Grade 1	10 ml bottle	29021	8030-00-111-2763
				50 ml bottle	29031	8030-00-111-2762
				250 ml bottle	29041	8030-01-050-8288
				1 liter bottle	29043	—
Wicking Grade High Strength	Letter Grade A (088)	Mil-S-22473E Grade A	Group 1 Class 2 Grade 1	50 ml bottle	08831	8030-00-081-2338
	Letter Grade AA (089)	Mil-S-22473E Grade AA	Group 1 Class 1 Grade 1	50 ml bottle	08931	8030-00-081-2340
250 ml bottle				08941	—	
High Temp.	Loctite® 272™ Threadlocker	CID A-A-59720 Grade HT	NA	50 ml bottle	27240	8030-01-171-7628

ASTM is a trademark of the American Society for Testing and Materials.

THREAD SEALING						
Product	Mil Specs	ASTM-D5363	Package Size	Item Number	NSN*	
Letter Grade HWV (571)	Mil-S-22473E Grade HWV	Group 1 Class 6 Grade 3	250 ml bottle	57141	8030-00-118-0012	
RETAINING						
Product	Mil Specs	ASTM-D5363	Package Size	Item Number	NSN*	
Close-Fitting Parts	Loctite® 675™ Retaining Compound	Mil-R-46082B Type I	Group 4 Class 1 Grade 1	250 ml bottle	67541	—
				10 ml bottle	60921	8030-00-180-6150
	Loctite® 609™ Retaining Compound	Mil-R-46082B Type I	Group 4 Class 1 Grade 1	50 ml bottle	60931	8030-00-180-6222
				250 ml bottle	60941	8030-00-891-8358
1 liter bottle	60943	—				
High Temp.	Loctite® 640™ Retaining Compound	Mil-R-46082B Type II	Group 4 Class 1 Grade 2	50 ml bottle	64031	8030-00-111-6404
				250 ml bottle	64041	8030-00-181-7529
				1 liter bottle	64043	—
Loose-Fitting Parts	Loctite® 635™ Retaining Compound	Mil-R-46082B Type III	Group 4 Class 2 Grade 1	50 ml bottle	63531	8030-00-181-7603
				250 ml bottle	63541	8030-00-614-9206
				1 liter bottle	63543	—
ANAEROBIC PRIMERS						
Product	Mil Specs	ASTM-D5363	Package Size	Item Number	NSN*	
Loctite® 7471™ Primer T™**	Mil-S-22473E Grade T Form R	ASTM-D5363 Approved	1.75 oz. bottle	19267	8030-01-388-5604	
			4.5 oz. aerosol can	22477	8030-00-082-2508	
			1 gal. can	19268	8030-00-083-3442	
Loctite® 7649™ Primer N™**	Mil-S-22473E Grade N Form R	ASTM-D5363 Approved	1.75 oz. bottle	19269	8030-01-388-5606	
			4.5 oz. aerosol can	21348	8030-00-980-3975	
			25 g aerosol can	21347	—	
			1 gal. can	19266	8030-00-935-5816	

* National Stock Numbers (NSN) are supplied where available based on our investigation of the WebFLIS system and may not be all inclusive.
** No group, class or grade required.

DID YOU KNOW?

History

Since the 1950s, Henkel has served the defense market. While taking a leadership role in supporting the U.S. Military's efforts with dedicated resources, Henkel has developed products and specifications for high performance adhesives, sealants, coatings and surface treatments. Today, thousands of assemblies in military vehicle, ordnance and other device applications use Loctite®, Alodine®, Multan®, Bonderite® and Turco® products.



INSTANT ADHESIVES					
Product	Mil Specs	Commercial Item Description A-A-3097	Package Size	Item Number	NSN*
Loctite® 404™ Quick Set™	Mil-A-46050C Type II Class II	Type II Class 2	1/3 oz. bottle	46551	8040-01-315-1759
			4 oz. bottle	46548	8040-01-568-0007
			1 lb. bottle	46561	8040-01-210-1017
Loctite® 414™ Super Bonder®	Mil-A-46050C Type II Class II	Type II Class 2	3 g tube	41404	—
			1 oz. bottle	41450	8040-01-197-2993
			1 lb. bottle	41461	—
Loctite® 415™ Super Bonder®	Mil-A-46050C Type I Class III	Type I Class 3	1 oz. bottle	41550	8040-01-038-7728
			1 lb. bottle	41561	—
Loctite® 416™ Super Bonder®	Mil-A-46050C Type II Class III	Type II Class 3	1 oz. bottle	41650	8040-01-140-0954
			1 lb. bottle	41661	—
			2 kg bottle	41689	—
Loctite® 420™ Super Bonder®	Mil-A-46050C Type II Class I	Type II Class 1	1 oz. bottle	42050	—
			1 lb. bottle	42061	8040-01-090-9320
Loctite® 422™ Super Bonder®	Mil-A-46050C Type II Class III	Type II Class 3	1 oz. bottle	42250	—
			1 lb. bottle	42261	—
Loctite® 430™ Super Bonder®	Mil-A-46050C Type I Class II	Type I Class 2	3 g tube	43004	8040-01-024-6988
			1 oz. bottle	43050	8040-01-203-1443
			1 lb. bottle	43061	8040-00-826-3535
Loctite® 493™ Super Bonder®	Mil-A-46050C Type I Class I	Type I Class 1	1 oz. bottle	49350	—
Loctite® 495™ Super Bonder®	Mil-A-46050C Type II Class I	Type II Class 1	3 g tube	49504	8040-01-216-7508
			1 oz. bottle	49550	8040-00-142-9193
			1 lb. bottle	49561	—
Loctite® 496™ Super Bonder®	Mil-A-46050C Type I Class II	Type I Class 2	1 oz. bottle	49650	8040-00-164-1359
			1 lb. bottle	49661	—

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INSTANT ADHESIVE ACCELERATORS					
Product	Mil Specs	Package Size	Item Number	NSN*	
Loctite® 712™ Tak Pak® Accelerator	Mil-A-46050C Type IIA or IIIA	0.7 oz. metered mist	18636	—	
		1.75 oz. bottle	20352		
		1 gal. can	18390		
Loctite® 7452™ Tak Pak® Accelerator	Mil-A-46050C Type IIA or IIIA	0.7 oz. metered mist	18637	8040-01-335-1402	
		1.75 oz. brush-cap bottle	18490		
		1.75 oz. spray-cap bottle	18580		
		1 qt. can	18575		
		1 gal. can	18576		
Loctite® 713™ Prism® Accelerator	Mil-A-46050C Type IIA or IIIA	1.75 oz. bottle	19889	—	
		1 gal. can	21480		
BONDING & SEALING					
Product	Mil Specs	Package Size	Item Number	NSN*	
Silicone	Loctite® 5040™ Industrial Grade	Mil-A-46146B Type II Group I	3 oz. squeeze tube	40405	—
		300 ml cartridge	40404		
	Loctite® 5045™ Industrial Grade	Mil-A-46146B Type I Group II	300 ml cartridge	40408	—
			3 oz. squeeze tube	40409	
Epoxy	A1177 B1/B2	QPL-MMM-A-1342 and QPL-MMM-A-132	2 qt. kit	748492	—
ANTI-SEIZE					
Product	Mil Specs	Package Size	Item Number	NSN*	
Loctite® Moly-50™ Anti-Seize	Mil-T-83483 (Mil-PRF-83483)	1 lb. can	51094	—	
		50.8 lb. can	1114937		
POROSITY SEALING / IMPREGNATION					
Product	Mil Specs	Package Size	Item Number	NSN*	
Loctite® RTC™ Resinol®	Mil-I-17563C Class 1 & 3	4 gal. carton	18018	—	
Loctite® PMS-10E™	Mil-I-17563C Class 1 & 3	1 gal. can	53971	—	
Loctite® 90C™ Resinol®	Mil-I-17563C Class 1	1 gal. can	18017	—	
CONFORMAL COATING					
Product	Mil Specs	Package Size	Item Number	NSN*	
Loctite® 394R™ Conformal Coating	Mil-I-46058C Type AR & UR	900 ml kit	40679	—	

* National Stock Numbers (NSN) are supplied where available based on our investigation of the WebFLIS system and may not be all inclusive.

DID YOU KNOW?

Dedicated Military Resources

Henkel has Military Design and Specification Specialists to assist you in testing, evaluating and developing new designs that take advantage of products with existing military specifications. Simply call **1.800.562.8483** to speak to a Henkel Military Specialist.



CONVERSION COATINGS MII-DTL-81706B												
TYPE 1 Composition with Cr ⁶	Class		Material Form						Application Method			
	1A	3	1 Form I Concentrated Liquid	2 Form II Powder	3 Form III Premix Liquid	4 Form IV Premix Liquid Thixotropic	5 Form V Premix Powder Thixotropic	6 Form VI Premix Liquid (Applicator)	A Spray	B Brush	C Immersion	D Applicator
	Alodine® 1001™		■	■						■		■
Alodine® 1132™ Touch-N-Prep® Pen	■	■						■				■
Alodine® 1200S™	■			■					■	■	■	
Alodine® 1200S™		■		■							■	
Alodine® 1201™ (Brush-On)	■				■					■		
Alodine® 1500™		■	■						■		■	
Alodine® 1600™	■	■	■								■	
Alodine® 600™	■	■		■					■	■	■	
Turco® Liquid Accelagold™	■				■					■		
TYPE 2 Composition with no Cr ⁶	Class		Material Form						Application Method			
	1A	3	1 Form I Concentrated Liquid	2 Form II Powder	3 Form III Premix Liquid	4 Form IV Premix Liquid Thixotropic	5 Form V Premix Powder Thixotropic	6 Form VI Premix Liquid (Applicator)	A Spray	B Brush	C Immersion	D Applicator
	Alodine® T 5900™	■	■	■					■	■	■	
Alodine® T 5900™ RTU	■	■			■			■	■	■		
Alodine® 871™ Touch-N-Prep® Pen	■	■					■					■

For package sizes and ordering information, call 1.800.521.1355, ext. 2, or visit www.henkelna.com/defense.

SECTION II: ADDITIONAL HENKEL PRODUCTS FOR DEFENSE APPLICATIONS

The products listed in Section II represent Henkel's latest technologies and are typically appropriate for use in the manufacturing of military vehicles, weapons and ordnance where a specific product is not required. However, Henkel offers many similar products that may be more appropriate for your specific application. We encourage you to contact us for assistance with product selection.

VEHICLE ASSEMBLY PRODUCTS

Henkel's "Best In Class" Innovative Solutions offer our customers a full portfolio of technologies, products and services to meet the demands of the world's ever-changing requirements for vehicle production.

Terostat® 1297™	Expanding, weld-through, semi-structural sealer with enhanced shear adhesion, gas resistance and wash-off resistance. Low-to-zero VOCs. Good corrosion resistance, high elasticity without read-through. Application can be manual or automated.
Terostat® 06-1273™	Pumpable, 200% expansion, weld-through, gas-resistant, controlled expansion body shop sealer designed for oily or galvanized steel. Application can be manual or automated.
Terostat® 10102™	Weldable sealer tape, medium expansion (60-140%) body shop, low sag, with film.
Terocore® 20200™	Epoxy-based, 50% expandable, high strength structural weld-through tape; ideal in spot weld joints to increase rigidity.
Loctite® 8700™ Speedbonder™ Structural Adhesive	A weld-through capable, toughened, two-component acrylic adhesive designed for weld/rivet reduction. Exhibits high resistance to paint bake temperatures.
Terophon®	NVH reduction. Terophon® expandable sealers provide extruded and custom-molded insulation from exterior sound, including road and wind noise.
Terocore® Ballistic Expanding Foam	Developmental product that has the potential to mitigate underbody blast events and effect fragment neutralization in certain vehicle designs. Please note that future testing should be coordinated with USA TACOM-Route Clearance Engineering.
Terokal® 5089™	One-part, heat cure epoxy. High strength and exceptional impact resistance over a wide range of temperatures.

DID YOU KNOW?

Engineering Services

Our goal is to become your adhesive consultant. Whether you need a quick product recommendation or a full-blown turnkey process, Henkel Engineering Services can provide the right solution. Our skilled engineers have years of combined experience developing hundreds of solutions for military manufacturers. Consult with Henkel and gain access to:

- Explosive compatibility product listing
- On-site engineering assistance and consultation
- Joint product development programs and custom formulations
- Contract lab services and testing, including environmental conditioning and accelerated aging studies
- Prototype testing and fixture preparation

An interactive version of this guide is available at www.henkelna.com/defense.



VEHICLE SEALANTS

These Henkel sealants are formulated to perform exceptionally well throughout vehicle service life, yet be user-friendly in vehicle manufacturing processes. These include one-component, two-component, foaming and paintable sealants.

Loctite® 3310™ Sealant	General-purpose, one-component polyurethane sealant. Fast, tack-free performance.
Loctite® 3370™ Adhesive	One-component, primerless polyurethane adhesive/sealant. High tack reduces fixturing requirements.
Loctite® 5590™ Adhesive Sealant	Two-part, paintable, primerless, non-silicone, elastomeric adhesive with high initial tack and fast set time. Ideal for panel bonding or general elastomeric bonding applications as Loctite® 5590™ does not require humidity/moisture to cure.
Loctite® 5570™ Adhesive, White	A white, one-component, strong bonding adhesive based on Flextec® (Silyl Modified Polymer) Technology with elastic properties for bonding dissimilar substrates. High initial tack, fast setting, paintable, able to withstand most production cleaning processes. Desert tan and olive drab formulations are pending.
Windshield Glass Installation (DGX)	Terostat® branded products have been used in leading edge direct glazing (DGX) application solutions for more than 20 years. Our DGX products are sag-resistant with high elasticity, high tensile strength and fast curing rates. The Terostat® DGX line includes adhesives/sealants that are polyurethane and modified silane polymer, which is free of isocyanates and has high UV-resistance. All adhesives/sealants in the line have been tested and approved in strict accordance to the U.S. Federal Motor Vehicle Safety Standard (FMVSS 208).

CLEANERS

Henkel offers a complete line of specialty, highly effective cleaners. Cleaners are available in both aqueous and solvent-based formulations.

Loctite® ODC-Free Cleaner & Degreaser	A non-aqueous, hydrocarbon-based solvent designed for cleaning and degreasing. Safe on aluminum, rubber and most plastics, and will not cause flash rusting on water-sensitive parts.
Loctite® Natural Blue® Biodegradable Cleaner & Degreaser	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 ozone-depleting-chemicals. CFA approved.

CONVERSION COATING AND PRETREATMENT PRODUCTS

These Henkel conversion coating products represent the best in sustainable surface treatment technology. Most are applied with traditional immersion or spray techniques, although some are offered in a unique wipe application package.



Alodine® 5700™ Wipes	A chrome-free conversion coating for aluminum and magnesium in a moistened wipe form. In addition to providing excellent corrosion resistance, this process also provides an excellent base for bonding of adhesives and organic paint finishes.
Bonderite® 1455-W™ Wipes	Bonderite® 1455-W™ Wipes produce a conversion coating on Cold Rolled Steel, Hot Rolled Steel, Galvanized and Armor Plate surfaces. The conversion coating provides an excellent base for organic finishes, sealers and most adhesives, and is formulated as a ready-to-use material for pre-saturated wipe application.
Parcosol® 263™ Wipes	Liquid cleaner in a moistened wipe to facilitate the remove of excess sealers, adhesives, sanding dust and general soils from bare metal, molding compounds and painted surfaces.
Parco® Lubrite® LT-10™	An energy-saving, low operating temperature manganese phosphate conversion coating formulated to produce a nonmetallic, corrosion-resistant coating on iron and steel surfaces. Extremely effective where there is metal-to-metal contact.
Alodine® EC2™	An electroceramic coating that is chromium-free and formulated for coating aluminum, titanium and their alloys, and can function as the final finish to provide extreme corrosion protection.
Alodine® 5200™	A chromium-free titanium/polymer conversion coating for non-ferrous alloys for bonding and organic finishes.
Bonderite® 7400™	Bonderite® 7400™ is formulated for dry-in-place, conversion coating use on steel, galvanized steel, and aluminum. The process produces a uniform coating which improves adhesion and improves bare corrosion resistance of aluminum, zinc and iron surfaces.
TecTalis®	Zirconium-based nanotechnology provides a green alternative to traditional iron phosphate. Runs at low temperatures and is completely phosphate- and regulated heavy metal-free, to reduce energy consumption and waste removal.
Bonderite® NT-1™	Zirconium-based nanotechnology provides a green alternative to traditional iron phosphate. Runs at low temperatures and is completely phosphate- and regulated heavy metal-free, to reduce energy consumption and waste removal.
Aquence® 930™ Aquence® 935G™ Aquence® 937™	Aquence® autodeposition coatings 930™ and 935G™ provide outstanding corrosion resistance, whether used as a stand-alone coating or as part of a primer/topcoat (CARC or other) system.

LIGHT CURING ADHESIVES

These adhesives cure with exposure to the appropriate wavelength and dosage of UV and/or visible light. They are typically used in applications where fast processing and high production rates are required.



Loctite® 4310™ Flashcure®, Loctite® 4311™ Flashcure®	Light Curing Instant Adhesives. Toughened adhesives with two cure mechanisms. Extremely fast (2-5 seconds) tack-free curing where exposed to light source, as well as rapid curing in areas not exposed to light. Product grades ranging from wicking to medium viscosity.
Loctite® 3105™ Light Cure Adhesive, Loctite® 3106™ Light Cure Adhesive	Light Cure Acrylic Plastics Bonders. Designed primarily for bonding rigid and flexible PVC and polycarbonate where joint flexibility is desired. Cure with UV or visible light. Available in low (3105™) or medium (3106™) viscosities.
Loctite® 352™ Light Cure Adhesive	Light Cure Acrylic Adhesive – High Viscosity. Creates a tough, flexible bond that is resistant to vibration and shock. Effective on a wide variety of materials. Cures with activator, UV light, or both.
Loctite® 5055™ Silicone Adhesive Sealant, Loctite® 5056™ Silicone Adhesive Sealant	Light Cure Silicone Adhesives. Light cure only – no secondary moisture cure mechanism. Fast set (within 30 seconds); excellent heat and humidity resistance. High adhesion to silicone and various plastics. Classified as halogen-free. Available viscosities: low viscosity (5055™) and medium viscosity (5056™).

STRUCTURAL ADHESIVES FOR BONDING COMPOSITES

Bond a wide variety of plastics and composite materials.

Loctite® H4800™ Speedbonder® Structural Adhesive	Acrylic Adhesive for Composites. Toughened acrylic adhesive with excellent peel strength and impact resistance. Provides high bond strengths of composites.
Loctite® U-09FL™ Hysol® Urethane Adhesive, Loctite® U-09LV™ Hysol® Urethane Adhesive	Flexible Urethane Adhesive. A two-component high performance urethane for bonding plastics (U-09FL™). Also available in a low viscosity formulation for potting applications requiring a flexible compound (U-09LV™).

THREADLOCKING, THREAD SEALING, RETAINING AND GASKETING

Loctite® threadlockers, thread sealants, retaining compounds and gasketing materials revolutionized the assembly of metal parts. Our latest technology products shown here continue to set the industry standard.



Loctite® 243™ Threadlocker Loctite® 263™ Threadlocker	Threadlockers. General-purpose threadlockers with improved temperature resistance. Do not require most fasteners to be pre-cleaned or primed before use. Available in medium strength (243™) and high strength (263™).
Loctite® 248™ Threadlocker Loctite® 268™ Threadlocker	Threadlocking Sticks. Semisolid stick formula ideal for field service. Convenient and portable – won't spill or leak. Available in medium strength (248™) and high strength (268™).
Loctite® QuickTape® 249™	Blue, medium strength threadlocking tape. Easy to apply and can be preapplied for future assembly. Same performance and reliability as Loctite® removable grade threadlocking liquids
Loctite® 567™ PST® Thread Sealant	Thread Sealant for Tapered Threads. Excellent solvent resistance, allows for easy assembly, prevents galling and withstand temperatures up to 400°F (240°C).
Loctite® 5452™ Fast Cure Thread Sealant	Hydraulic and Pneumatic Sealant. Fast curing. Contains no fillers or particles that could contaminate system fluids, foul valves, or clog fine filters and screens.
Loctite® 648™ Retaining Compound	Retaining Compound. Loctite® retaining compounds are used for retaining pins, shafts and other non-threaded cylindrical assemblies. They can be used to augment or replace a press fit assembly. Loctite® 648™ fills gaps up to 0.006 in. diametral clearance and fixtures in five minutes.
Loctite® 5188™	Anaerobic Gasketing Material. A highly flexible, medium-to-high strength gasketing material, which shows excellent adhesion on aluminum. Designed to function in the most demanding power train applications with superior adhesion and flexibility, even after heat aging.
Loctite® 5810A™	Polyacrylate-based Gasketing Material. More chemically resistant than silicones. Typically used for axle and transmission applications, as well as oil pans.
Loctite® 5699™ Grey Flange Sealant	Silicone-based Gasketing Material. For rigid flange assemblies. Excellent fluid resistance. Easy to dispense, noncorrosive, low odor, low volatility. Grey in color.
Loctite® 5613™ Silicone	Two-component Silicone Gasketing Material. Oil-resistant. Designed for superior fluid resistance. Fast room temperature cure. Black in color.
Loctite® 5039™ Nuva-Sil® Silicone Adhesive Sealant	Cured-in-place Gasketing Material. Light curing, silicone-based, cured-in-place material for gasketing and sealing applications. Applied robotically and cured with UV and/or visible light to form a gasket bonded to one substrate. Ideal for high volume gasketing applications where access for service is required.

INSTANT ADHESIVES

Similar to products meeting MIL-A-46050C, but offering superior cured properties and/or enhanced processing characteristics.



Loctite® 401™ Prism® Loctite® 454™ Prism® Gel	Surface Insensitive Instant Adhesives. Adhesives well-suited for assembly of a wide range of materials with faster cure speeds. Product grades ranging from wicking to gel viscosity.
Loctite® 435™ Prism® Loctite® 426™ Prism®	Toughened Instant Adhesives. Clear and black elastomer-modified adhesives with exceptional bond and peel strengths on metals, plastics and rubbers. Product grades ranging from medium viscosity to gel.
Loctite® 4203™ Prism® Loctite® 4204™ Prism® Loctite® 4205™ Prism®	Thermally Resistant Instant Adhesives. Toughened adhesives with excellent hot strength and heat aging properties up to 250°F. Product grades ranging from medium viscosity to gel.
Loctite® 770™ Prism® Primer	Adhesion Promoter. Formulated for use with polyolefins and other low-surface energy plastic materials. For use with Loctite® instant adhesives only.

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SPECIALTY ADHESIVES

For bonding of explosives and propellants. For more information regarding explosive compatibility, contact Henkel.

Loctite® Explosive Charge Bonders	Loctite Explosive Charge Bonders are anaerobic adhesives that are compatible with many types of explosives and energetics. Available in Natural Color (30450) and Red for inspection (30447). Contact Henkel for more information.
Loctite® 7090™ Primer	Solvent-free primer for use with anaerobic adhesives, including explosive charge bonders. Use where solvent-based primers are not recommended.
Henkel A1177 B1/B2	Henkel A1177 A/B is a two-part epoxy that is compatible with many types of explosives and energetics. Contact Henkel for more information.

STRUCTURAL ADHESIVES FOR BONDING METALS

Specially formulated to provide tough, long-lasting bonds to metal surfaces.

Loctite® H8000™ Speedbonder® Structural Adhesive	Room-temperature-curing acrylic metal bonder. High peel strength and impact resistance on multiple substrates, especially aluminum.
Loctite® 331™ Structural Adhesive	Single-component Acrylic Adhesive. Toughened activator-cure acrylic adhesive. 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.
Loctite® E-30UT™ Hysol® Epoxy Adhesive	Ultra-tough Epoxy Adhesive. A two-component, room-temperature curing epoxy adhesive that contains Kevlar® to provide exceptional fracture toughness for the most demanding structural bonding requirements.

MULTIPLE SURFACE STRUCTURAL ADHESIVES

Adhesives that bond well to both metals and plastics.

Loctite® E-40HT™ Hysol® Epoxy Adhesive	High Temperature Epoxy Adhesive. A two-component, toughened adhesive that combines high peel strength at room temperature with tensile lap shear strength at elevated temperatures. Exhibits exceptional high temperature performance.
Loctite® E-05MR™ Hysol®	Moisture-resistant Epoxy Adhesive. Clear, two-component, room-temperature curing epoxy adhesive provides excellent moisture resistance and exceptional toughness for a five-minute epoxy.

LUBRICANTS

Henkel offers a complete line of specialty lubricants that are highly effective and provide superior protection for the toughest of industrial applications. These lubricants are capable of supporting applications where high temperatures, chemicals and other harsh contaminants come into play.

Loctite® C5-A® Copper-Based Anti-Seize Lubricant	Anti-Seize. Exclusive formula suspends copper and graphite in a high-quality grease. Protects metal parts from corrosion, galling and seizing at temperatures to 1800°F (982°C). Available in paste or stick form.
Loctite® Heavy Duty Anti-Seize	Anti-Seize. Excellent lubricity. Metal-free formulation provides outstanding lubrication to all metals including stainless steel, aluminum and soft metals up to 1800°F (982°C). Available in paste or stick form.
Loctite® Marine Grade Anti-Seize	Anti-Seize. Metal-free formulation to protect assemblies exposed directly or indirectly to fresh and salt water. Works especially well in high humidity conditions. Excellent lubricity, superior water washout and water spray resistance and prevents galvanic corrosion. Protects in temperatures from -20°F to 2400°F (-29°C-1315°C).
Loctite® Moly Paste	Moly Lubricant. Metal-free, very low friction. Lubricates press fits, protects during break-in and under high static loads up to 750°F (400°C). Allows maximum clamping from available torque.
Loctite® Maxi-Coat™	Protection for Parts Storage. Loctite® Maxi-Coat™ is a heavy-duty coating that provides long-term protection for metal parts, equipment and machinery. Forms a protective, waxy film that seals out moisture, air, acid and other corrosive elements. Great for protecting parts in storage. Removable with Loctite® Nonflammable Electrical Contact Cleaner.

Kevlar is a trademark of E. I. du Pont de Nemours and Company.

Additional Explosives Compatible Products

Contact Henkel for information regarding adhesives and sealants that have been tested for compatibility with specific explosives and energetics.

SEALANTS AND POTTING COMPOUNDS

Henkel manufactures a wide range of elastomeric sealants and potting compounds. Many of these products were developed to meet the needs of high volume manufacturing operations and to increase throughput.

Loctite® 5600™ Silicone Adhesive & Sealant	Very fast cure, two-component, noncorrosive silicone sealant. Five-minute fixture time. High adhesion, flexible adhesive/sealant. Typically appropriate for automated assembly processes. Available in Black, Grey and Almond colors.
Loctite® 5604™ Loctite® 5605™ Loctite® 5606™ Loctite® 5607™	Two-component, noncorrosive silicone sealants. Designed for strong elastic bonding and sealing applications. Products vary in open times and fixture times to match specific applications and processes. Easy to dispense. Grey in color.
Loctite® 3310™	General-purpose, one-component polyurethane sealant. Fast tack free performance.
Loctite® 5611F™ Silicone Potting Compound	Silicone potting compound. Two-component, flame retardant (UL® 94V-0) silicone potting compound. Fast curing. Grey in color.
Loctite® 3364™	Two-part polyurethane potting compound. Fast setting, room temperature cure; low exotherm. Flame retardant (UL® 94V-0).
Loctite® 5240™ Nuva-Sil® Silicone Adhesive Sealant	Light curing silicone potting compound. UV or visible light cure as well as moisture cure. Noncorrosive. High adhesion for difficult-to-bond substrates. Ideal for high speed bonding and sealing processes.
Loctite® E-40 EXP™	Explosion-proof epoxy sealant/potting compound. UL® recognized two-component, room-temperature-curing epoxy designed for Class I, Groups A, B, C and D Class II, Groups E, F and G sealing compounds in cable sealing fittings or lead seals for use in hazardous locations.

ANTI-SLIP COATINGS

Loctite® Big Foot® Acrylic Pedestrian Grade	A single-component, elastomeric anti-slip floor and deck coating for optimum adhesion to asphalt and flexible applications. UV-resistant.
Loctite® Big Foot® 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.

METALWORKING FLUIDS

- Recommend for Grinding
- ▲ Recommend for General Machining – Turning, Drilling, Milling, Reaming, Sawing, Cutting
- Recommend for Heavy Machining – Threading, Broaching, Deep Hole Drilling, Reaming

** Individual alloys should be tested prior to recommendation.

PRODUCTS	COMMENT	ORDER ITEM NUMBER	CONTAINER WEIGHT (KG)	CONTAINER SIZE	CONCENTRATE COLOR	RUST-FREE CONC. (% - CAST IRON)	OIL CONTENT RANGE (%)	TYPICAL CONCENTRATION	PHOSPHORUS	SULFUR	CHLORINE	SUBSTRATE COMPATIBILITY										
												STEEL	CAST IRON	ALUMINUM**	YELLOW (COPPER/BRASS)**							
SEMISYNTHETIC																						
Multan® B-236™	Excellent for soft water, high pressure operations	1052099	18	PAIL	Amber	2	20-25	5%-10%	X				●	▲	■	▲	■	●	▲	■	●	▲
		1052099	202	DRUM									●	▲	■	▲	■	●	▲	■	●	▲
		1052099	1198	330 GAL. TOTE									●	▲	■	▲	■	●	▲	■	●	▲
Multan® B-400™	Excellent versatile product for all substrates	706695	18	PAIL	Amber	2	25-30	5%-10%	X	X	CHLORINE-FREE		●	▲	■	▲	■	●	▲	■	●	▲
		677532	197	DRUM									●	▲	■	▲	■	●	▲	■	●	▲
		802380	1180	330 GAL. TOTE									●	▲	■	▲	■	●	▲	■	●	▲
Multan® B-414™	Designed for jobs where foam can be a current challenge	1183211	18	PAIL	Amber	2	25-30	5%-10%	X	X	CHLORINE-FREE		●	▲	■	▲	■	●	▲	■	●	▲
		1183199	197	DRUM									●	▲	■	▲	■	●	▲	■	●	▲
		1183248	1180	330 GAL. TOTE									●	▲	■	▲	■	●	▲	■	●	▲
Multan® B-451™	High extreme pressure package for demanding requirements	778269	19	PAIL	Amber	2	25-30	5%-10%	X	X	CHLORINE-FREE		●	▲	■	▲	■	●	▲	■	●	▲
		767598	208	DRUM									●	▲	■	▲	■	●	▲	■	●	▲
		778794	1002	275 GAL. TOTE									●	▲	■	▲	■	●	▲	■	●	▲

** Individual alloys should be tested prior to recommendation. UL is a certification mark of Underwriters Laboratories.

**ADDITIONAL
HENKEL
RESOURCES**



**Henkel Chemical
Management Services**

248.577.2049
<http://www.henkelna.com/chemicalmanagement>

Henkel Chemical Management offers a broad range of chemical management products and services including:

- Supply Chain Management
- Procurement and Sourcing – e-commerce and bar-coding
- Inventory Management – including POU (point of use) (MISL)
- Information Systems
- Process Engineering – on-site technical support
- Environmental and Regulatory Compliance
- Shelf Life and Lot Control
- Project Management Initiatives

Henkel Aerospace

925.458.8000
www.henkelna.com/aerospace

Henkel's Aerospace group has access to a wide range of solutions to address your aerospace needs. For cleaning, assembly applications and processing, the company's reliable, efficient products are used on commercial aircraft, regional jets, business aircraft, jet engines and nacelles, as well as space and defense, helicopter and airline refurbishment and overhaul operations.

Henkel Electronic Materials

Customer and Product Support - 1.888.943.6535
www.henkelna.com/electronics

Henkel Electronic Materials is the world's leading and most progressive provider of qualified and compatible materials for the Defense and Aerospace industries. By delivering world-class materials, products and process expertise, Henkel enables tomorrow's electronics industry. Electronic solutions include:

- Epoxy Film and Paste Solutions
- High Reliability Underfills
- Conformal Coatings and Encapsulants
- Solder Materials
- Thermal Interface Materials (TIM)

Many of Henkel's electronic materials are certified to MIL-STD 883, Method 5011 and NASA outgassing ASTM E 5595-77/84/90 specifications.

**Henkel Dispensing and
Curing Equipment**

860.571.5174
Please visit www.equipment.loctite.com to see all lines.

A full line of Loctite® adhesive dispensing components and systems, including:

- Valves, Reservoirs, Pumps, Controllers, Syringe and Cartridge Systems

A full line of UV and Visible Light Curing Equipment, including:

- LED Lamps, Mercury-Arc Lamps, both in spot cure and area cure.
- Most curing lamps available individually, or as benchtop, chamber, or conveyance configurations.

A full line of Benchtop Dispensing Robots

Please visit www.equipment.loctite.com to see all lines.



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this guide is available at
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