

Alodine®



Henkel Industrial Solutions Surface Treatment Selector Guide





At Henkel Corporation, we provide solutions to industry's biggest challenges. We are dedicated to understanding the markets we serve and developing partnerships that stand the test of time.

For more than 100 years, Henkel has been the leading supplier of state-of-the-art metal pretreatment technologies. As the world's leading supplier of chemical pretreatments for light metals, plastics and steel, Henkel sets high standards for corrosion protection, paint adhesion and environmental safety.

To help you compete in today's challenging manufacturing environment, our chemists and engineers work in partnership with our customers to improve design, assembly, productivity and profitability. Whether you need consultation on our products' performance or a turnkey process design, Henkel provides solutions.

Henkel Brands

Alodine®

Registered as a trademark in 1946 as the conversion coating for aluminum substrates, Alodine® is a series of conversion coatings that improve paint adhesion and provide corrosion protection for light metal substrates. These coatings include metal pretreatments and post rinses for light metal pretreatments.



Since the early 1930s, Bonderite® has been well established in the automotive and metalworking industries as a brand for conversion coating processes and chemistries to improve paint adhesion, corrosion protection and wear resistance to ferrous-based alloys, mixed metal alloys and plastic surfaces. The products that make up the Bonderite® brand include process line chemistries, cleaners, pretreatment chemistries including activators and conditioners, conversion coating chemistries, post treatment chemistries (including rinses and passivation), as well as auxiliary products including toner, additives, accelerators and neutralizer.



Registered in 1894, the P3® brand didn't begin to represent cleaners until the late 1920s. These cleaners are for metallic and nonmetallic surfaces, fouling prevention and corrosion protection, together with disinfection of water and use with wastewater treatments. These products are liquid/powdery products designed for use in low and high temperature applications at different pH ranges (acid, neutral and alkaline), and in high-pressure applications, depending on customer conditions.



This selector guide will aid you in choosing the right solution and product for a wide range of common industrial challenges. For additional information on Henkel products, please contact us at 1.800.562.8483.

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Surface Treatment CLEANERS

ALKALINE CLEANERS

Applied by spray, immersion and stripline units, these strong alkaline treatments are particularly recommended for use before Bonderite® conversion coating processes. Alkaline cleaners are used to remove organic soils such as dirt, oils and grease.

Parco® Cleaner 1520A™ – Two package, low temperature, liquid cleaner formulated to prepare ferrous, zinc and aluminum surfaces to receive uniform, dense, crystalline conversion coatings.

Parco® Cleaner 1523A™ – Multi-package, low temperature, liquid cleaner formulated to prepare ferrous, zinc and aluminum surfaces to receive uniform, dense, crystalline conversion coatings. The medium- to heavy-duty cleaning solution may be applied by spray or immersion and is very effective in removing metal working fluids and soils.

Parco® Cleaner 1533A™ – Multi-package, low temperature, liquid cleaner formulated to prepare ferrous, zinc and aluminum surfaces to receive uniform, dense, crystalline conversion coatings. The medium- to heavy-duty cleaning solution is designed specifically for use in the automotive industry.

Parco® Cleaner 2087X™ – Single package liquid cleaner formulated for the removal of Bonderlube® lubricants and other drawing compounds or oils from baskets, racks, tumbling barrels and production parts. The cleaner may be applied by either spray or immersion.

Parco® Cleaner 2090™ – Designed to prepare steel surfaces to receive a conversion coating prior to a phosphating operation. Parco® Cleaner 2090™ is free of phosphates, which are increasingly regulated.

Parco® Cleaner 220™ – Mildly alkaline liquid cleaner formulated for use in power spray washing of ferrous and non-ferrous metals.

Parco® Cleaner 220-WB™ – Mildly alkaline liquid cleaner formulated for use in power spray washing of ferrous and non-ferrous metals. Designed for a wide temperature range and operations where splitting of the oil is preferred.

Parco® Cleaner 2988™ – Concentrated cleaner, free of volatile hydrocarbons. Formulated for the effective removal of body sealers, drawing compounds and other soils prior to cleaning and phosphating.

Parco® Cleaner 305™ – Alkaline cleaner designed to prepare aluminum, steel, hot-dip galvanized and electrogalvanized steel surfaces.

Parco® Cleaner 319™ – Alkaline cleaner designed to prepare aluminum, steel, electrogalvanized and hot-dip galvanized surfaces to receive a conversion coating, or used prior to a plating operation.

Parco® Cleaner 319MM™ – Single package, phosphate-free, liquid alkaline cleaner specially designed as a multi-metal cleaner. Note: Surfactants contain phosphorous.

Parco® Cleaner 338™ – Powdered cleaner designed to prepare aluminum, steel, hot-dip galvanized and electrogalvanized steel surfaces.

Parco® Cleaner 415™ – Liquid alkaline cleaner especially designed for cleaning steel, galvanized and aluminum surfaces prior to receiving a conversion coating. Contains a unique, low foaming surfactant package that allows operation over a fairly wide temperature range of 110°F to 160°F in both spray and immersion applications.

Parco® Cleaner 470™ – Heavy-duty liquid alkaline cleaner designed for the cleaning of ferrous metals.

Parco® Cleaner 472™ – Single package, phosphate-free, liquid alkaline cleaner specially designed as a multi-metal product capable of cleaning steel, galvanized steel and aluminum surfaces prior to receiving a conversion coating.

Parco® Cleaner 75™ – Heavy-duty alkaline cleaner, rust remover and paint stripper.

Parco® Cleaner 800™ – Liquid alkaline cleaner especially designed for cleaning hard soils on steel galvanized and aluminum surfaces. It contains a unique blend of surfactants, giving it superior cleaning capability plus low foaming tendencies. This low foaming, phosphate-free product provides “interstage corrosion protection” by utilizing non-nitrite chemistries.

Parco® Cleaner 900™ – Strongly alkaline, powdered cleaner designed for low temperature spray or immersion application in the general line industry. The heavy-duty cleaner can be used on steel, zinc, zinc-alloy or aluminum surfaces.

Parco® Cleaner 902™ – Strongly alkaline, low foaming liquid cleaner designed for spray application in most metal finishing operations, particularly prior to the application of iron phosphate treatment.

Parco® Cleaner 907™ – Concentrated liquid, non-silicated, alkaline immersion cleaner for steel surfaces that exhibits excellent bath life, good scale inhibition and prevents soil redeposition.

Novaclean™ 120LF™ – Alkaline high-performance, non-etch, non-silicated, powdered cleaning concentrate that has been designed to handle heavy soil loads and give long bath life.

ALKALINE CLEANERS

Products	Order Item Number	Liquid	Spray	Immersion	Steel/Heavy Duty	Substrate		Etch Heavy Etch on Al & Zn	Temperature Operating Temperature	Builders			
						Aluminum/Magnesium	Multi-Metal*			Sodium	Potassium	Phosphate	Glucamate
Parco® Cleaner 1520A™	594224	X	X	X			X		110°F-140°F	X	X	X	
	772031	X	X	X			X		110°F-140°F	X	X	X	
Parco® Cleaner 1523A™	594363	X	X	X			X		110°F-140°F	X	X	X	
Parco® Cleaner 1533A™	595919								110°F-140°F				
Parco® Cleaner 2087X™	593929	X	X	X	X			X	175°F-210°F	X	X		X
	691736	X	X	X	X			X	175°F-210°F	X	X		X
Parco® Cleaner 2090™	594036	X	X	X			X		120°F-160°F	X	X		X
	772149	X	X	X			X		120°F-160°F	X	X		X
Parco® Cleaner 220™	594569	X	X				X		80°F-180°F				X
	772223	X	X				X		80°F-180°F				X
Parco® Cleaner 220-WB™	598064	X	X				X		80°F-180°F				X
	772337	X	X				X		80°F-180°F				X
Parco® Cleaner 2988™	594582	X	X				X		80°F-180°F				X
	597753	X	X				X		80°F-180°F				X
Parco® Cleaner 305™	670363	X	X	X			X	X	100°F-140°F		X	X	X
	593947	X	X	X			X	X	100°F-140°F		X	X	X
Parco® Cleaner 319™	593897	X	X	X			X	X	120°F-180°F		X	X	X
	596645	X	X	X			X	X	120°F-180°F		X	X	X
Parco® Cleaner 319MM™	594588	X	X	X			X		110°F-160°F	X	X		X
	772258	X	X	X			X		110°F-160°F	X	X		X
Parco® Cleaner 338™	593916		X	X	X		X	X	140°F-180°F	X		X	X
	771821		X	X	X		X	X	140°F-180°F	X		X	X
Parco® Cleaner 415™	594143	X	X	X			X	X	110°F-160°F	X	X	X	X
Parco® Cleaner 470™	594051	X	X	X	X			X	80°F-160°F	X		X	X
	772222	X	X	X	X			X	80°F-160°F	X		X	X
Parco® Cleaner 472™	594372	X	X	X			X		110°F-160°F	X	X		X
	772238	X	X	X			X		110°F-160°F	X	X		X
Parco® Cleaner 75™	598971	X	X	X	X			X	180°F-210°F	X		X	X
Parco® Cleaner 800™	655112	X	X	X		X	X		110°F-160°F	X	X		X
	592906	X	X	X		X	X		110°F-160°F	X	X		X
	772091	X	X	X		X	X		110°F-160°F	X	X		X
Parco® Cleaner 900™	594940		X	X	X			X	100°F-110°F	X		X	X
Parco® Cleaner 902™	593928	X	X	X	X	X	X		90°F-150°F		X	X	
Parco® Cleaner 907™	594608	X		X	X			X	140°F-170°F	X	X	X	X
	772075	X		X	X			X	140°F-170°F	X	X	X	X
Novaclean™ 120LF™	594478	X		X		Not for Magnesium	X		140°F-155°F	X	X		X

* Steel, Zinc, Aluminum





Surface Treatment CLEANERS

ALKALINE CLEANERS

Quali-Clean™ S-22-C™ – Liquid, medium to heavy-duty, low phosphate alkaline material to be used for spray cleaning of ferrous articles. It has been formulated to produce low foaming and excellent rinsing characteristics.

Ridoline® 1036™ – Concentrated, highly alkaline, phosphate-free etching cleaner for aluminum for immersion or spray applications.

Ridoline® 18™ – Powdered, silicate-free, mildly alkaline cleaner designed to remove oils and light oxide films from aluminum and its alloys.

Ridoline® 212™ – Concentrated, liquid, silicate-free, mildly alkaline cleaner designed to remove oils and light oxide films from aluminum and its alloys.

Ridoline® 298™ – Liquid, non-silicated, immersion cleaner for aluminum and aluminum alloys. It is formulated for use in anodizing and conversion coating lines. It is free rinsing and will remove a variety of soils including oils, greases, inks and wax based markings.

Ridoline® 336™ – Powdered, silicate-free, mildly alkaline cleaner designed to remove oils and light oxide films from aluminum and its alloys in either immersion or spray application.

Ridoline® 412™ – Concentrated liquid, silicate-free, mildly alkaline cleaner removes oils and light oxide films from aluminum and its alloys.

Ridoline® 412-C™ – Concentrated, liquid, silicate-free, mildly alkaline cleaner designed to remove oils and light oxide films from aluminum and its alloys. Note: Surfactants approved for Canada.

Ridoline® 422E™ – Strongly alkaline, liquid cleaner. It is used, after dilution with water, to clean new equipment (i.e., phosphate and elpo tanks) prior to chemical charge-up. The cleaner may be applied by either spray or immersion.

Ridoline® 56™ – Concentrated liquid alkaline cleaner used in immersion systems for cleaning aluminum alloys, copper and copper alloys, cast iron and steel, as well as zinc and cadmium plated surfaces.

Ridoline® RT-100™ – Ready-to-use liquid alkaline spray cleaner. This cleaner contains a unique surfactant system, which gives it the ability to clean at low temperatures, thus reducing energy requirements and costs.

Ridoline® RT-153™ – Room temperature cleaner designed to prepare aluminum, steel, hot-dip galvanized and electrogalvanized steel surfaces.

Ridoline® RT-180™ – Multi-metal, low-temperature, spray alkaline cleaner designed to clean and prepare metallic surfaces to receive a conversion coating.

SC-78BK™ – High performance cleaning system designed to handle heavy soil loads and give long bath life. The removal of cutting oils, buffing compounds and other soils is accomplished rapidly and completely with SC-78BK™. It performs exceptionally well as an aluminum cleaner prior to bright dipping and anodizing operations. Copper, brass, magnesium, steel, titanium and other metals can also be cleaned using SC-78BK™. The powdered cleaning concentrate (SC-78BK™ POWDER) coupled with a detergent additive (SC-78BK™ ADDITIVE) that is packaged in a separate container.

ALKALINE CLEANERS

Products	Order Item Number	Liquid	Spray	Immersion	Substrate			Etch Heavy Etch on Al & Zn	Temperature Operating Temperature	Builders				
					Steel/Heavy Duty	Aluminum/Magnesium	Multi-Metal*			Sodium	Potassium	Phosphate	Gluconate	Inter-Stage Protection
Quali-Clean™ S-22-C™	595034	X	X		X			X	120°F-180°F	X	X	X		
	771973	X	X		X			X	120°F-180°F	X	X	X		
Ridoline® 1036™	597638	X	X	X		Not for Magnesium	X		90°F-150°F	X				
	772316	X	X	X		Not for Magnesium	X		90°F-150°F	X				
Ridoline® 18™	594304			X		Not for Magnesium	X		140°F-185°F	X		X		
Ridoline® 212™	593946	X	X	X		Not for Magnesium	X		100°F-185°F		X	X		
	597967	X	X	X		Not for Magnesium	X		100°F-185°F		X	X		
Ridoline® 298™	643705	X		X		Not for Magnesium	X		130°F-180°F	X		X		
	772191	X		X		Not for Magnesium	X		130°F-180°F	X		X		
	654998	X		X		Not for Magnesium	X		130°F-180°F	X		X		
Ridoline® 336™	838286		X	X		Not for Magnesium	X		100°F-185°F	X		X		
	772036		X	X		Not for Magnesium	X		100°F-185°F	X		X		
Ridoline® 412™	627028	X	X	X		Not for Magnesium	X		130°F-180°F	X		X		
	736390	X	X	X		Not for Magnesium	X		130°F-180°F	X		X		
	772482	X	X	X		Not for Magnesium	X		130°F-180°F	X		X		
Ridoline® 412-C™	864227	X	X	X		Not for Magnesium	X		130°F-180°F	X		X		
Ridoline® 422E™	595926	X	X	X	X			X	80°F-180°F	X			X	
Ridoline® 56™	594819	X	X	X			X		120°F-140°F		X	X		
	772125	X		X			X		120°F-140°F		X	X		
Ridoline® RT-100™	597326	X	X				X		70°F-140°F		X	X		
Ridoline® RT-153™	1194733	X	X	X			X	X	80°F-153°F		X	X	X	
	1194731	X	X	X			X	X	80°F-153°F		X	X	X	
Ridoline® RT-180™	1366502	X	X				X		80°F-120°F		X	X	X	
SC-78BK™	594507			X			X		120°F-190°F	X		X		X

* Steel, Zinc, Aluminum





Surface Treatment CLEANERS

ACID CLEANERS

Acid cleaners are used prior to applying conversion coatings and are designed to remove inorganic soils such as weld and laser scale, and other oxides such as rust. Acid cleaners are also widely used as maintenance cleaners.

Deoxidine® 172A™ – Spray phosphoric acid detergent-type metal cleaner and surface rust remover that removes rust and light deposits of mill oil and destroys corrosion stimulators.

Deoxidine® 182A™ – Phosphoric acid-based detergent-type metal cleaner and surface rust remover for steel that can be used in spray or immersion systems to remove rust and light deposits of mill oil; it also destroys corrosion stimulators. Deoxidine® 182A™ is specifically designed for steel surfaces. The organic surfactants contained in Deoxidine® 182A™ are classified by the manufacturer as biodegradable.

Deoxidine® 182B™ – Phosphoric acid-based, detergent-type metal cleaner designed to remove rust and oxides left from laser cutting and welding on steel surfaces.

Deoxidine® 20™ – Acidic liquid especially formulated to clean immersion and spray processing tanks and equipment. The solution cleans tanks as well as relatively inaccessible areas such as pump intakes, minimizes labor required for cleaning, and prolongs equipment life. The cleaner should only be used on systems composed of stainless steel.

Deoxidine® 2520™ – Acidic and specifically formulated for removal of scale from closed loop stainless steel heat transfer systems.

Deoxidine® 2530™ – Acidic and specifically formulated for removal of scale from closed loop stainless steel heat transfer systems.

Deoxidine® 457™ – Nonflammable, phosphate-free, surfactant-based cleaner, brightener and pre-paint conditioner for magnesium and aluminum. Deoxidine® 457™ should not be used on high copper bearing aluminum alloys or aluminum castings.

Deoxidine® 7005™ – Mixed mineral acid-solvent-detergent liquid metal cleaner and rust remover.

Deoxidine® 7150™ – Acidic composition, which when diluted with water, produces a spray cleaning solution designed for removing light rust and oxidation from iron and steel surfaces. For effective derusting, articles must be free from grease and oil before cleaning in the Deoxidine® 7150™ solution.

Deoxidine® A-500™ – Specially formulated inhibited acid, supplied in liquid form and used to clean power-spray processing equipment. The solution cleans relatively inaccessible areas (such as pump intakes), minimizes labor required for cleaning and prolongs equipment life.

Metalprep® 79™ – Nonflammable, multi-purpose, phosphoric, acid-based cleaner and prepaint conditioner for most metals.

Novaclean™ 172I™ – Acid cleaner concentrate formulated to clean aluminum and its alloys prior to chrome phosphate conversion coating and other surface treatments requiring a thoroughly clean surface. Novaclean™ 172I™ removes organic soils and provides a slight surface etch and can be used with steel and/or stainless steel equipment.

Parco® Purge 2510™ – Specially formulated inhibited acid supplied in liquid form. Particularly advantageous in removing scale-like deposits from pipes, nozzles and heating coils in phosphate spray systems.

Parco® Purge 2550™ – Cleaner solution that is phosphoric acid-based and is specifically formulated for removal of scale from closed stainless steel heat transfer surfaces.

Parco® Purge A-200™ – Concentrated, acidic liquid specially designed to clean and prepare spray stages for a reliable, fast and effective method for removing sludge and scale from tanks and spray equipment. Parco® Purge A-200™ is used as an additive to 50% caustic soda in the tank per the Technical Process Bulletin (TPB) instructions.

Ridoline® 4450™ – Concentrated, liquid, phosphate-free acidic cleaner used on aluminum and its alloys for cleaning, deoxidizing and micro-etching of the metal surface for activation prior to conversion coatings and organic finishing. Ridoline® 4450™ can also be used on zinc, copper and brass for cleaning with oxidation removal.

ACID CLEANERS

Products	Order Item Number	Liquid	Spray	Immersion	Typical Use	Temperature	Contents			
						Operating Temperature	Phosphoric Acid	Hydrochloric Acid	Nitric Acid	Sulfuric
Deoxidine® 172A™	594838	X	X	X	Heavy Duty for Steel	Ambient-180°F	X			
	771994	X	X	X	Heavy Duty for Steel	Ambient-180°F	X			
Deoxidine® 182A™	892856	X	X	X	Heavy Duty for Steel	Ambient-180°F	X			
	594282	X	X	X	Heavy Duty for Steel	Ambient-180°F	X			
	772225	X	X	X	Heavy Duty for Steel	Ambient-180°F	X			
Deoxidine® 182B™	596557	X	X	X	Heavy Duty for Steel	Ambient-180°F	X			
	772293	X	X	X	Heavy Duty for Steel	Ambient-180°F	X			
Deoxidine® 20™	599054	X	X	X	Stainless Steel	Ambient-135°F			X	
	772405	X	X	X	Stainless Steel	Ambient-135°F			X	
Deoxidine® 2520™	598893	X			Stainless Steel	120°F-150°F			X	
	693244	X			Stainless Steel	120°F-150°F			X	
Deoxidine® 2530™	598923	X			Stainless Steel	120°F-150°F	X			
	772406	X			Stainless Steel	120°F-150°F	X			
Deoxidine® 457™	597508	X	X	X	Aluminum & Magnesium	Ambient				
	772302	X	X	X	Aluminum & Magnesium	Ambient				
Deoxidine® 7005™	593984	X		X	Heavy Duty for Steel	120°F-190°F	X			X
	595269	X		X	Heavy Duty for Steel	120°F-190°F	X			X
Deoxidine® 7150™	596730	X	X		Heavy Duty for Steel	135°F-165°F				
	772286	X	X		Heavy Duty for Steel	135°F-165°F				
Deoxidine® A-500™	777789	X	X	X	Heavy Duty for Steel	Ambient		X		
	598846	X	X	X	Heavy Duty for Steel	Ambient		X		
Metalprep® 79™	594305	X	X	X	Heavy Duty for Steel	Ambient	X			
	594822	X	X	X	Heavy Duty for Steel	Ambient	X			
Novaclean™ 1721™	593841	X	X	X	Aluminum	110°F-150°F	X			
	771966	X	X	X	Aluminum	110°F-150°F	X			
Parco® Purge 2510™	593872	X	X	X	Clean Out	Ambient-115°F		X		
Parco® Purge 2550™	593872	X			Clean Out	120°F-150°F	X			
	594545	X			Clean Out	120°F-150°F	X			
Parco® Purge A-200™	594611	X	X	X	Additive	Ambient-180°F				
	599065	X	X	X	Additive	Ambient-180°F				
Ridoline® 4450™	594996	X	X	X	Aluminum	120°F-160°F				
	599021	X	X	X	Aluminum	120°F-160°F				





Surface Treatment CLEANERS

INDUSTRIAL CLEANERS

Industrial cleaners can be used for general maintenance cleaning.

P3® Grato™ 3000™ Cleaner – Water-based, phosphate-free cleaning product designed for the exteriors of trains, cars, lorries, tarpaulin covers and other vehicles. Foaming cleaner especially suitable for car- and train-washes and transport companies with cleaning gantries.

P3® Hi-Lite Wipe 2495™ Wipes – Quarter-folded, nonwoven wipes saturated with a low viscosity, petroleum-based sheet metal highlighting aid. The pre-saturated wipe applies an even, highly reflective film, which greatly enhances the visual or automated inspection of stamped, metal surfaces for defects.

P3® Lavoxyd™ Acid – Foaming acid cleaner that has been specially developed for cleaning the exterior of railroad cars, buses and tank wagons. P3® Lavoxyd™ Acid removes soils, brake dust and oils from painted surfaces, glass windows, aluminum, stainless steel and plastic surfaces.

P3® Grato™ 14™ Marine (US) Cleaner – Concentrated, moderately alkaline liquid formulated to meet the requirements of industrial general maintenance cleaning needs.

P3® Grato™ 50™ Marine (US) Cleaner – Highly alkaline concentrated product designed for steam gun or high pressure manual applications on steel, copper, copper alloys and most plastics. It is ideal for cleaning large stationary equipment and machine parts in plants as well as the plant itself. It is also good for cleaning large vessels, tanks and containers.

Parco® 2280™ Clean-up – Blue liquid with a mild pleasant aroma. Formulated to meet the properties required by automotive and other industrial general maintenance cleaning needs.

Parco® Maintenance Cleaner 2235™ – Concentrated blue liquid having a mild aroma. Formulated to meet the requirements of automotive and other industrial general maintenance cleaning needs.

Parco® Preclean 2960™ – Concentrated, water-based cleaner. It is effective in the body shop as well as in the hand wipe operation of industrial assembly lines.

Parco® Preclean 2978™ – Concentrated, water-based cleaner that contains no volatile hydrocarbons. It is applied by hand wipe or misting in the preclean operation of industrial assembly lines.

Parco® Preclean 2990™ – Concentrated, alkaline, water-based cleaner that is free of volatile hydrocarbons. It provides excellent cleaning and gives long-term corrosion protection and ease of control. As a hand-applied preclean chemical, its slow-drying characteristic helps to suspend loosened soils. The product exhibits excellent detergency without creating a foaming problem in the process cleaning bath.

Products	Order Item Number	Application/System			Temperature	Contents			
		Spray	Concentration (% by volume)	Mild Steel Etch	Operating Temperature	Liquid	Phosphate-Free	Phosphoric Acid	Citric Acid
P3® Grato™ 3000™ Cleaner	1290334	X	2%-5%	X	110°F-160°F	X	X		X
	1371210	X	2%-5%	X	130°F-150°F	X		X	
P3® Hi-Lite Wipe 2495™ 600/Pack	593058	X	2%-5%	X	130°F-150°F	X	X		X
P3® Lavoxyd™ Acid	1290349	X	10%-50%		60°F-80°F	X		X	X
P3® Grato™ 14™ Marine (US) Cleaner	611375	X	3%-50%		Ambient-175°F	X		X	
P3® Grato™ 50™ Marine (US) Cleaner	611514	X	1%-5%		70°F-120°F	X			
Parco® 2280™ Clean-up	594614		0.5%-20%		Ambient	X	X		
	596168		0.5%-20%		Ambient	X	X		
Parco® Maintenance Cleaner 2235™	594792		0.5%-50%		Ambient	X	X		
	597788		0.5%-50%		Ambient	X	X		
Parco® Preclean 2960™	595970		10%-100%		Ambient	X	X		
	594352		10%-100%		Ambient	X	X		
	738220		10%-100%		Ambient	X	X		
Parco® Preclean 2978™	594394		10%-100%		Ambient-115°F	X			
	595223		10%-100%		Ambient-115°F	X			
Parco® Preclean 2990™	772089		10%-100%		Ambient-115°F	X	X		

SOLVENT BLEND CLEANERS

Solvent blend cleaners are wide spectrum solvent blends for prepaint, equipment and general-purpose cleaning applications. Supplied in the form of saturated wipes, pails and drums.

Parcosol® 263™ Wipes – Liquid cleaner used to moisten a woven or nonwoven wipe to facilitate the removal of excess sealers, adhesives, sanding dust and general soils from bare metals, sheet molding compounds or E-Coated surfaces. The cleaner contains no Hazardous Air Pollutants (HAPs) and no Superfund Amendments and Reauthorization Act (SARA) reportables.

Parcosol® 264™ Wipes – Nonwoven wipes saturated with a low viscosity, low odor, petroleum-based solvent. The pre-saturated wipes are useful for cleaning and removal of solvent soluble soils from metal surfaces prior to or after painting or alkaline cleaning.

Parcosol® 277™ WB – HAPS-free, low-VOC, water-soluble, proprietary activator/amine purge blend used for internal and external cleaning of waterborne paint application equipment. The product is specifically formulated to aggressively remove wet, semi-dry and dry waterborne paint.

Parcosol® 283™ – HAPs-free (Hazardous Air Pollutants), 2F flash point, organic solvent blend used for internal and external cleaning of solvent-borne paint application equipment and metal surfaces. Parcosol® 283™ Wipes allow the residue to be absorbed into the wipe rather than being smeared over the surface to be cleaned. The wipe allows easy application of the Parcosol® 283™. It is necessary to observe all safe handling practices, as this material is extremely flammable.

Products	Order Item Number	Application/System					Temperature Operating Temperature	Characteristics VOC (H, M, L)
		Wipe	Solvent-Borne Paint	Waterborne Paint	E-Coat System	General Soil Cleanup		
Parcosol® 263™ Wipes	598224	X				X	None	
Parcosol® 264™ Wipes MBO*	598616	X				X	M	
Parcosol® 277™ WB	694064		X	X			<90°F L	
Parcosol® 283™	693246		X	X	X		<150°F None	
Parcosol® 283™ Wipes	790873	X	X	X	X		<150°F None	

* Minimum batch order – 5 cases.



Surface Treatment CLEANERS

PLASTIC CLEANERS

Plastic cleaners are specially formulated, water-based cleaners designed to prepare a wide range of plastics for painting.

Polyprep® 2303™ Cleaner – Phosphate-free alkaline cleaner specially formulated for cleaning of plastic surfaces. The product is suitable for a wide range of plastics including SMC, polyurethane and polyurea RIM, ABS, TPO, TPE, PVC and polyethylene. It is free of solvents, ethoxylated phenol-type surfactants, silicates, fluorides and any regulated heavy metals such as molybdenum.

Polyprep® 2635™ Cleaner – Phosphate-free acidic cleaner formulated primarily for cleaning of plastic surfaces. The cleaning solution is used in spray wash systems prior to the application of paint films or other surface treatments. It is suitable for a wide range of plastics including primed and raw SMC, polyurethane and polyurea RIM, ABS, TPO, TPE, PVC and polyethylene.

Products	Order Item Number	Application/System			Temperature	Contents	
		Spray	Concentration (% by volume)	Mild Steel Etch	Operating Temperature	Liquid	Phosphate-Free
Polyprep® 2303™ Cleaner	772520	X	2%		120°F-160°F	X	X
Polyprep® 2635™ Cleaner	598136	X	2%		120°F-150°F	X	X
	897898	X	2%		120°F-150°F	X	X

LIGHT METAL ACID DEOX

Light Metal Acid Deox products are designed to remove surface oxides and smut from the aluminum substrate after the alkaline cleaning or etching stages in multi-stage conversion coating process lines. For light deoxidizing or brightening applications, see the Acid Cleaners section on Page 7 under “Typical Use” for aluminum safe products.

Deoxalume® 151™ – Deoxalume 151™ is a liquid, non-fluoride material that is suitable for deoxidizing and/or slight etching of aluminum and its alloys.

Deoxalume® MF™ – Dry acid fluoride approved for use in BAC 5765 for deoxidizing aluminum alloys.

Products	Order Item Number	Application/System			Temperature	Contents	
		Spray	Concentration (% by volume)	Mild Steel Etch	Operating Temperature	Liquid	Phosphate-Free
Deoxalume® 151™	191776	X	3%-6%	X	90°F-120°F	X	X
Deoxalume® MF™	154146	X	8 oz./gallon in 20% Nitric Acid	X	Ambient		X

Surface Treatment CONDITIONERS

Surface treatment conditioners for manganese and zinc phosphate processes are used prior to the conversion coating stage with no rinse between the stages to leave a chemical deposit of conditioner to aid in the development of the proper phosphate crystals on the metal surface.

CONDITIONERS FOR MANGANESE PHOSPHATE

Fixodine® M™ – Powdered conditioning agent used for articles of iron and steel, ahead of a Parco® Lubrite™ treatment. It promotes the formation of a dense and fine crystalline phosphate coating.

Products	Order Item Number	Application					Temperature Range
		Liquid	Powder	Spray	Immersion	Manganese Coatings	
Fixodine® M™	771836		X		X	X	120°F-190°F
	611588		X		X	X	120°F-190°F

CONDITIONERS FOR ZINC PHOSPHATE

Fixodine® Z™ – Specially formulated to prepare iron, steel, aluminum, zinc and zinc-alloy surfaces for subsequent crystalline phosphate coating applications. These surfaces may be treated singly or in mixed production by either spray or immersion processing.

Fixodine® Z-9™ – Specially formulated to prepare iron, steel, aluminum, zinc and zinc-alloy surfaces for subsequent crystalline phosphate coating applications. These surfaces may be treated singly or in mixed production by either spray or immersion processing.

Fixodine® Z-10™ – Specially formulated to prepare iron, steel, aluminum, zinc and zinc-alloy surfaces for subsequent phosphate coating applications. These surfaces may be treated individually or in mixed production by either spray or immersion processing.

Fixodine® ZL™ – Specially formulated to prepare iron, steel, aluminum, zinc and zinc-alloy surfaces for subsequent phosphate coating applications. These surfaces may be treated individually or in mixed production by either spray or immersion processing. Fixodine ZL™ is a concentrated liquid which is pumpable and goes easily into water.

Fixodine® ZN™ – Specially formulated to prepare iron, steel, aluminum, zinc and zinc-alloy surfaces for subsequent phosphate coating applications. These surfaces may be treated individually or in mixed production by either spray or immersion processing.

Prepalene™ X™ – Patented, easy to handle liquid conditioning rinse that prepares iron, steel, aluminum, zinc and zinc-alloy surfaces for subsequent phosphate coating applications.

Products	Order Item Number	Application					Temperature Range
		Liquid	Powder	Spray	Immersion	Zinc Phos Conditioner	
Fixodine® Z™	593895		X	X	X	X	Ambient-140°F
	595718		X	X	X	X	Ambient-140°F
Fixodine® Z-9™	595245			X	X	X	Ambient-120°F
	593958			X	X	X	Ambient-120°F
Fixodine® Z-10™	593993			X	X	X	Ambient-120°F
	594568			X	X	X	Ambient-120°F
	771875			X	X	X	Ambient-120°F
Fixodine® ZL™	593918	X		X	X	X	Ambient-120°F
	593974	X		X	X	X	Ambient-120°F
Fixodine® ZN™	592598			X	X	X	Ambient-120°F
	670362			X	X	X	Ambient-120°F
	594023			X	X	X	Ambient-120°F
Prepalene™ X™	687530	X		X	X	X	Ambient-120°F
	772525	X		X	X	X	Ambient-120°F





Surface Treatment

CONVERSION COATINGS

CLEANER COATERS

Cleaner coaters are process chemicals designed to both clean and deposit a iron phosphate conversion coating on the metal surface prior to painting. Wipe-on, spray wand and three-stage washer products are available.

Fosbond™ 267™ – Liquid detergent type product, which produces an iron phosphate coating. It will both clean and deposit a thin coating on steel prior to painting.

Galvaprep® SG™ – Nonflammable phosphoric acid-based coating chemical that is designed to produce a uniform zinc phosphate coating on steel and galvanized surfaces.

Parco® Spray Wand 101™ – Concentrated liquid product designed for steam gun and high pressure manual applications on steel surfaces for simultaneous cleaning and conversion.

Parco® Spray Wand 200™ – Designed to simultaneously clean and impart an iron phosphate conversion coating on aluminum and zinc surfaces by use of a spray wand application.

Parco® Spray Wand 330™ – Nonflammable phosphoric acid, surfactant-based cleaner, brightener and prepaint conditioner for aluminum. Parco® Spray Wand 330™ should not be used on high copper bearing aluminum alloys or aluminum castings.

Prep-N-Cote® 2557L™ – Formulated for spray or immersion application on steel, aluminum and galvanized surfaces. Prep-N-Cote® 2557L™ simultaneously cleans and coats the metal surface.

Prep-N-Cote® 500LT™ – Iron phosphate cleaner- and coater-in-one has been formulated for spray application of steel surfaces to simultaneously clean and coat metal surfaces.

Prep-N-Cote® 505™ – Formulated for spray application to steel surfaces to simultaneously clean and develop a conversion coating. The process converts the metal surfaces to a nonmetallic, iron phosphate coating, which retards corrosion and increases the adhesion and durability of paint finishes.

Prep-N-Cote® 700™ – Formulated for spray and immersion application to simultaneously clean and develop a conversion coating on steel, zinc and aluminum surfaces. This process produces a uniform nonmetallic phosphate coating, which inhibits corrosion and increases the adhesion and durability of paint finishes.

Prep-N-Cote® GS 755™ – Formulated for spray and immersion application to simultaneously clean and develop a conversion coating on steel, zinc and aluminum surfaces. This process produces a uniform nonmetallic phosphate coating, which inhibits corrosion and increases the adhesion and durability of paint finishes. Prep-N-Cote® GS 755™ is formulated to minimize flash rusting and protect against interstage corrosion.

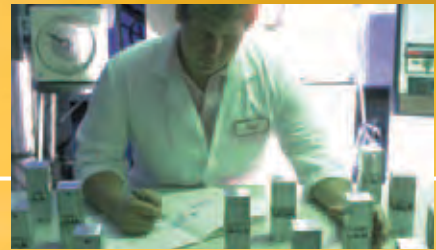
NOTE: MIX EACH DRUM BEFORE USING.

Prep-N-Cote® LS 756™ – A Henkel Technologies proprietary product, especially designed to attack laser scale, light rust and conventional weld scale on steel substrates. Prep-N-Cote® LS 756™ simultaneously attacks the scale and imparts a uniform, nonmetallic conversion coating, which inhibits corrosion and increases the adhesion and durability of paint finishes to the steel substrate as a whole.



Products	Order Item Number	Liquid	Spray	Immersion	Spray Wand	Substrate		Acceleration		Temperature Range	
						Steel	Multi-Metal	Organic	Fluoride		Surfactant
Fosbond™ 267™	597320	X	X			X		X		X	140°F-170°F
Galvaprep® SG™	594016	X					X			X	Ambient-120°F
	594694	X					X			X	Ambient-120°F
Parco® Spray Wand 101™	594296	X	X		X	X		X		X	120°F-190°F
	598806	X	X		X	X		X		X	120°F-190°F
	772110	X	X		X	X		X		X	120°F-190°F
Parco® Spray Wand 200™	594643	X			X	X	X	X	X	X	130°F-190°F
	772101	X			X	X	X	X	X	X	130°F-190°F
Parco® Spray Wand 330™	595382	X	X		X		Al only		X	X	Ambient-120°F
	772145	X	X		X		Al only		X	X	Ambient-120°F
Prep-N-Cote® 2557L™	593908	X	X	X	X	X	X				90°F-160°F
	597707										90°F-160°F
Prep-N-Cote® 500LT™	593944	X	X	X	X	X				X	70°F-140°F
	771987	X	X	X	X	X				X	70°F-140°F
Prep-N-Cote® 505™	593932	X	X	X		X		X		X	90°F-140°F
Prep-N-Cote® 700™	594268	X	X	X	X	X	X	X	X	X	110°F-150°F
	772086	X	X	X	X	X	X	X	X	X	110°F-150°F
Prep-N-Cote® GS 755™	593042	X	X	X	X	X	X	X		X	110°F-150°F
	594140	X	X	X	X	X	X	X		X	110°F-150°F
	597453	X	X	X	X	X	X	X		X	110°F-150°F
	772257	X	X	X	X	X	X	X	X	X	110°F-150°F
Prep-N-Cote® LS 756™	818814	X	X	X	X	X	X	X		X	125°F-160°F





Surface Treatment

CONVERSION COATINGS

IRON PHOSPHATE CONVERSION COATINGS

Following the proper Cleaner and Rinse stages, these products convert the metal surface to a nonmetallic, iron phosphate coating that inhibits corrosion, and increases the adhesion and durability of paint finishes. These substantial increases in the life of the paint result from the fact that this multistage process provides a clean, grease-free/oil-free surface, corrosion-inhibiting base for paint, and a non-conducting bond between the base metal and the paint.

Bonderite® 1020™ – Formulated for spray and immersion application to steel surfaces. The process produces a uniform, nonmetallic phosphate coating, which inhibits corrosion and increases the adhesion and durability of paint finishes.

Bonderite® 1030™ – Treatment designed for low temperature spray application to steel surfaces. The Bonderite® 1030™ process converts the metal surface to a nonmetallic, iron phosphate coating that inhibits corrosion and increases the adhesion and durability of paint finishes.

Bonderite® 1040™ – Treatment designed for low temperature spray application to steel surfaces. The Bonderite® 1040™ process converts the metal surface to a nonmetallic, iron phosphate coating that inhibits corrosion and increases the adhesion and durability of paint finishes.

Bonderite® 1050™ – Treatment designed for low temperature spray application to steel surfaces. The Bonderite® 1050™ process converts the metal surface to a nonmetallic, iron phosphate coating that inhibits corrosion and increases the adhesion and durability of paint finishes.

Bonderite® 1070™ – Formulated for spray and immersion application to steel, aluminum and zinc surfaces to simultaneously clean and develop a conversion coating. The process produces a uniform nonmetallic phosphate coating that inhibits corrosion and increases the adhesion and durability of paint finishes.

Bonderite® 1080™ – Formulated for spray and immersion application to simultaneously clean and develop an iron phosphate conversion coating on steel. This process produces a uniform nonmetallic phosphate coating that inhibits corrosion and increases the adhesion and durability of paint finishes. Bonderite® 1080™ RP is formulated to minimize flash rusting and protect against interstage corrosion.

Bonderite® 1090™ – Imparts an amorphous, non-heavy metal phosphate conversion coating that treats steel and multi-metal substrates simultaneously. It is formulated for spray and immersion application to produce uniform nonmetallic phosphate coatings which inhibit corrosion and increase the adhesion and durability of paint finishes.

Products	Order Item Number	Liquid	Spray	Immersion	Substrate		Acceleration		Fluoride	Surfactant	Temperature Range
					Steel	Multi-Metal	Organic				
Bonderite® 1020™	593875	X	X	X	X	X			X		110°F-150°F
	593819	X	X	X	X	X			X		110°F-150°F
	772085	X	X	X	X	X			X		110°F-150°F
Bonderite® 1030™	593941	X	X	X	X						110°F-120°F
Bonderite® 1040™	594236	X	X	X	X						90°F-140°F
Bonderite® 1050™	594958	X	X	X	X					X	100°F-150°F
Bonderite® 1070™	593818	X	X	X	X	X	X		X	X	110°F-150°F
Bonderite® 1080™	598608	X	X	X	X	X			X	X	110°F-150°F
	598878	X	X	X	X	X			X	X	110°F-150°F
Bonderite® 1090™	594281	X	X	X	X	X	X		X		110°F-150°F
	772192	X	X	X	X	X	X		X		110°F-150°F

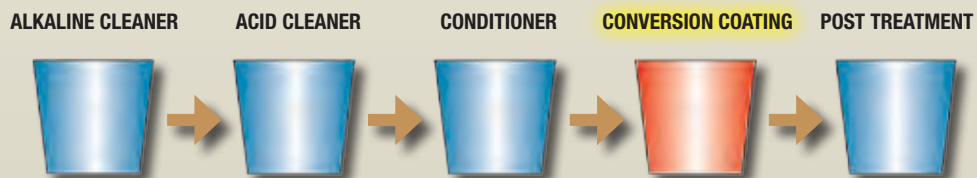
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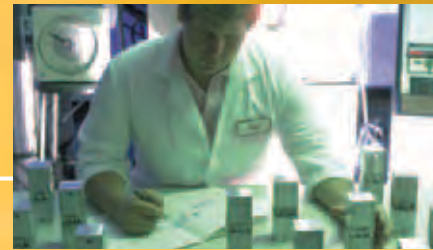
This unique chemistry allow for either a wipe-on or mist-on step to apply a quality conversion coating without the need of a final rinse.

Bonderite® 1455-W™ Wipes – Pre-saturated wipes create a conversion coating on steel and galvanized surfaces. Bonderite® 1455-W™ Wipes produce a chromium-free conversion coating on Cold Rolled Steel, Hot Rolled Steel, Galvanized and Armor Plate surfaces. This product is formulated as a ready-to-use material for pre-saturated wipe application. The conversion coating provides an excellent base for organic finishes, sealers and most adhesives. Bonderite® 1455-W™ Wipes produce a conversion coating, which forms from a reaction with the metal surface to form true chemical bonds. This reaction greatly enhances adhesion and corrosion resistance of subsequently applied paints (including primers when multiple coat systems are used), sealers and adhesives. The Bonderite® 1455-W™ Wipes conversion coating process is a dry-in-place application and does not require water rinsing.

Bonderite® 7400™ – 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. The process does not need to be rinsed following the coating treatment, which eliminates a water rinse stage and the need for treatment of that water.

Products	Order Item Number	Substrate						Crystal Type	Temperature Range
		Spray	Wipe	Steel	Zinc	Aluminum			
Bonderite® 1455-W™ Wipes	1134878		X	X	X		Nano	Ambient	
Bonderite® 7400®	597816	X		X	X	X	Nano	Ambient	
	599060	X		X	X	X	Nano	Ambient	





Surface Treatment

CONVERSION COATINGS

MANGANESE PHOSPHATE

These corrosion-resistant coatings consist chiefly of iron and manganese phosphates, and reduce wear on such articles as pistons, rings, liners, camshafts, tappets, motor blocks and similar bearing surfaces. Other beneficial effects are: permits rapid break-in of moving parts without scuffing or welding by preventing metal-to-metal contact between the bearing surfaces; increases lubrication of treated surfaces due to the oil-absorptive coating; and removes light metal scratches remaining from machining operations.

Parco® Lubrite™ 2™ – Formulated to produce nonmetallic, oil-absorptive coatings on iron and steel bearing surfaces. These corrosion-resistant coatings consist chiefly of iron and manganese phosphates, and reduce wear on such articles as pistons, rings, liners, camshafts, tappets, motor blocks and similar bearing surfaces.

Parco® Lubrite™ LT 10™ – Formulated to produce nonmetallic, oil-absorptive coatings on iron and steel bearing surfaces. These corrosion-resistant coatings consist chiefly of iron and manganese phosphates, and reduce wear on such articles as pistons, rings, liners, camshafts, tappets, motor blocks and similar bearing surfaces.

Products	Order Item Number	Liquid	Immersion	Steel	Acceleration	Temperature
						Temperature Range
Parco® Lubrite™ 2™	593831	X	X	X	Internal	205°F-210°F
	593889	X	X	X	Internal	205°F-210°F
	805661	X	X	X	Internal	205°F-210°F
	771807	X	X	X	Internal	205°F-210°F
Parco® Lubrite™ LT 10™	594401	X	X	X	Internal	180°F-190°F
	594941	X	X	X	Internal	180°F-190°F

NON-PHOSPHATE / NANO TECHNOLOGY

These next generation nano technology conversion coatings provide an environmentally responsible alternative to traditional phosphate coatings. Tremendous cost savings are achieved due to the low energy, low maintenance and low waste treatment costs associated with this technology.

Bonderite® NT-1™ – This zirconium-based nanotechnology provides a green alternative to traditional iron phosphate. It runs at low temperatures and is completely phosphate- and regulated heavy metal-free, to reduce energy consumption and waste removal.

TecTalis® 1200 Makeup A™ – Phosphate-free reactive ambient spray conversion coating formulated for use in the treatment of steel, zinc and aluminum surfaces. The pretreatment is free of regulated organic components and increases the corrosion resistance of painted metal surfaces.

TecTalis® 1800 Makeup A™ – Phosphate-free reactive ambient immersion conversion coating formulated for use in the treatment of steel, zinc and aluminum surfaces. The process increases the corrosion resistance of painted metal surfaces and is free of regulated organic and inorganic components.

Products	Order Item Number	Spray	Immersion	Substrate			Crystal Type	Temperature Range
				Steel	Zinc	Aluminum		
Bonderite® NT-1™	611359	X	X	X	X	X	Nano	55°F-100°F
	772426	X	X	X	X	X	Nano	55°F-100°F
	772427	X	X	X	X	X	Nano	55°F-100°F
TecTalis® 1200 Makeup A™	1245931	X		X	X	X	Nano	55°F-110°F
	1245934	X		X	X	X	Nano	55°F-110°F
TecTalis® 1800 Makeup A™	1246859		X	X	X	X	Nano	55°F-110°F
	1247011		X	X	X	X	Nano	55°F-110°F
	1247386		X	X	X	X	Nano	55°F-110°F

ZINC PHOSPHATE

These products convert the metal surface to a nonmetallic, polycrystalline coating containing iron, manganese, nickel and zinc phosphates. The metals may be treated individually or in mixed production.

Bonderite® 3410™ – Chemicals formulated for treating mixed production of steel, galvanized steel, aluminum and zinc alloy coated steel. The Bonderite® 3410™ process converts the metal surface to a nonmetallic, fine-crystal, zinc phosphate coating that inhibits corrosion and increases the adhesion and durability of paint finishes.

Bonderite® 37™ – Chemicals formulated primarily for treating hot-dip galvanized and certain continuous electrogalvanized surfaces which are difficult to coat with other materials. Applied by spray or immersion, the treatment will prevent white spots, seediness and pinpoint buildup.

Bonderite® 769™ – Process converts the metal surface to a nonmetallic, polycrystalline coating containing manganese, cobalt and zinc phosphates. This coating provides high alkaline resistance and is preferred as a paint base offering superior adhesion and durability.

Bonderite® 880™ – Phosphate Process for Bare Corrosion Resistance: Ferrous iron-containing, zinc phosphate process for treating steel surfaces. The product is formulated with an internal crystal-refining agent. When applied to steel, the process converts the surface to a nonmetallic, corrosion-resistant zinc phosphate coating. The coating has great adherence, is of an absorptive nature, and provides protection from rust by bonding the final finish of oil, wax or paint to the articles treated.

Bonderite® 952™ – Polycrystalline conversion coating process formulated for immersion application to steel, galvanized steel, electrogalvanized steel, zinc-alloy coated steel and aluminum. The metals may be treated individually or in mixed production.

Bonderite® 958™ – Polycrystalline conversion coating process formulated for spray application to steel, galvanized steel, electro-galvanized steel, zinc-alloy coated steel and aluminum. The metals may be treated individually or in mixed production.

Bonderite® ZM-1™ – This zinc phosphate conversion coating converts metallic substrate surfaces to a fine-crystalline, nonmetallic zinc phosphate coating that inhibits corrosion, and increases the adhesion and durability of organic paints and finishes.

Parkerizing® 210™ – Heavy Zinc Phosphate Process: The treatment solution is formulated to produce nonmetallic, zinc phosphate coatings that are highly resistant to corrosion on iron and steel surfaces. The coatings have great adherence, are of an absorptive nature and provide substantial protection from rust by bonding the final finish of stain, oil, wax or paint to the articles treated. The treatment produces a uniform coating on all surfaces, which the solution can reach, and is especially suitable for rust-proofing threaded pieces and articles with small holes or recesses.

Products	Order Item Number	Spray	Immersion	Substrate			Acceleration	Crystal Type	Contents		Temperature Range
				Steel	Zinc	Aluminum			Manganese	Nickel	
Bonderite® 3410™ Makeup	594677	X	X	X	X	X	External	Micro	X	X	140°F - 1605°F
Bonderite® 37™ Makeup	594960	X	X	X	X	X	External	Micro	X	X	130°F - 170°F
Bonderite® 769™ M™	595066	X	X	X	X		External	Micro			120°F - 135°F
Bonderite® 880™ Makeup	595236		X	X	X		External	Micro			165°F - 185°F
Bonderite® 880™ Makeup	771811		X	X	X		External	Micro			165°F - 185°F
Bonderite® 952™ Makeup	594349	X		X	X	X	External	Micro	X	X	120°F - 130°F
Bonderite® 958™ Makeup	594197		X	X	X	X	External	Micro	X	X	110°F - 120°F
Bonderite® ZM-1™ Makeup	595068	X	X	X	X		Internal	Micro	X		120°F - 135°F
Parkerizing® 210™	594916		X	X			Internal	Heavy		X	170°F - 190°F
	771847		X	X			Internal	Heavy		X	170°F - 190°F





Surface Treatment CONVERSION COATINGS

LIGHT METALS

The Alodine® Light Metal Conversion Coating products provide an excellent paint base and bonding surface for aluminum substrates. RoHS Compliant, Chrome-Free and Trivalent Chrome Environmentally Responsible products are available. Standard chromate conversion coatings for MIL-Spec applications are also part of the product line.

Alodine® 1000™ Liquid – Liquid chemical used to produce a protective coating on aluminum and aluminum alloys. The coating provides protection for aluminum and this coating provides an excellent bond for organic coatings. Develops a clear or colorless protective coating and it should be used when the characteristic aluminum appearance or finish must be retained. Approved for use under Boeing Specification BAC 5719 for Class B.

Alodine® 1000™ RTU – Ready-to-use, aqueous solution for producing a protective coating on aluminum and its alloys. Light coatings do not significantly change the appearance of the aluminum surface. The coating provides excellent protection for painted and unpainted aluminum and bonds paint well.

Alodine® 1132™ Touch-N-Prep® Coating – A MIL-DTL-81706 approved pen for applying the Class 1A chromate conversion coating for MIL-DTL-5541.

Alodine® 120™ Brush Kit – Brush Alodine® Chemical Kit NO. 120 contains products formulated for treating aluminum to conform to MIL-C-5541C, Class 1A. This kit contains sufficient chemicals for cleaning and coating approximately 100 square feet of aluminum surface when used under normal conditions and in accordance with the following directions.

Alodine® 1200S™ – Powdered chemical used to produce a protective coating on aluminum, which minimizes corrosion and provides an improved bond for paint. Surfaces treated with the Alodine™ 1200S® process range in color from a light iridescent golden to tan. Alodine™ 1200S® coating chemical, listed on Qualified Product List QPL-81706, is an approved material to produce Class 1A and Class 3 coatings, bare or painted, in accordance with Military Specifications MIL C-5541C.

Alodine® 1200S™ RTU Brush – Ready-to-use liquid product that produces a chromate conversion coating on aluminum and its alloys. The coating produced provides excellent protection for unpainted aluminum and bonds paint well.

Alodine® 1201™ – Nonflammable, chromic acid-based, coating chemical that will produce a chrome conversion coating on aluminum and its alloys. The coating formed by Alodine® 1201™ is gold to tan in color and it becomes a part of the aluminum surface. This chrome conversion coating offers the best affordable substrate for both paint adhesion and corrosion resistance.

Alodine® 1500™ – Liquid chemical used to produce a protective coating on aluminum or aluminum alloys. The coating provides protection for aluminum and is an excellent bond for clear organic coatings. Alodine® 1500™ should be used when the characteristic aluminum appearance must be retained. Alodine® 1500™ is listed on the register for QPL-MIL-C-81706 and is approved to be used by Methods A and C (spray and immersion processing) to produce class 3 coatings in accordance with Military Specification MIL-C-5541 (current issue). Alodine® 1500™ may also be used to process aluminum under Specification MIL-S-5002; however, in processing certain exterior aircraft surfaces, approval of the procuring agency should be secured.

Alodine® 1600™ – Concentrated liquid two-package chemical used to produce a chromate conversion coating on aluminum and all its alloys. The color ranges from light iridescent gold to tan. Alodine® 1600™ can be applied by immersion or spray method and it does not contain complex cyanides. Alodine® 1600™ is approved for use under MIL-DTL-81706A, formally MIL-C-81706, Classes 1A and 3, Form, I, Method C and BAC-5719.

Alodine® 1600™ RTU – Ready-to-use liquid product that produces a chromate conversion coating on aluminum and its alloys. The coating produced provides excellent protection for unpainted aluminum and greatly improves paint bonding.

Alodine® 2600™ Makeup – Cobalt-based conversion coating for aluminum.

Alodine® 4595™ – Chromium-free zirconium/polymer product for treating aluminum to provide an excellent base for organic finishes and bonding.

Alodine® 5200™ Makeup – Treatment is a chromium free product specifically formulated for treating non-ferrous alloys. Spray or immersion applications may be used. This process provides an excellent base for bonding of adhesives and organic finishes.

Alodine® 5700™ – Ready-to-use version of Alodine® 5200™, also available in convenient wipes.

Alodine® 5700™ Wipes – Ready-to-use version of Alodine® 5200™, also available in convenient wipes.

Alodine® 600™ – Powdered chemical used to produce a chromate conversion coating on aluminum and its alloys, which ranges in color from light, iridescent gold to tan. Can be applied by immersion or spray method, does not contain complex cyanides, and is particularly recommended where a low dielectric resistance coating is desired. Alodine® 600™ is approved under MIL-C-81706 for use by Application Methods A and C, classes 1A and 3; and its listing on QPL 81706 indicates its acceptance under the MIL-C-5541 document of current issue.

Alodine® 600™ RTU – Ready-to-use liquid product which produces a chromate conversion coating on aluminum and its alloys. The coating produced provides excellent protection for unpainted aluminum and bonds paint well.

Alodine® 713™ Makeup – Conversion coating bath formulated for the treatment of aluminum and its alloys. Applied by immersion, the solution advantageously treats assemblies of aluminum alloys with small amounts of other metal such as brass, copper, cadmium plate, zinc plate, mild steel and stainless steel. Better results are obtained by treatment of the complete assembly rather than the individual parts before assembly. No sludge develops.

Alodine® 871™ Touch-N-Prep® – Coating – Non-hexavalent chromium dry-in-place conversion coating designed for use on aluminum and its alloys. The applicator used to deliver this product provides an easy and safe method of repairing bare areas of aluminum surfaces. Alodine® 871™ is formulated for both bare corrosion protection such as ASTM 921-02 and bonding applications when combined with organic coatings or structural adhesives.

Alodine® T 5900™ – Trivalent chrome conversion coating approved to MIL-DTL-81706/MIL-DTL-5541F Class 1A and 3.

Alodine® T 5900™ RTU – Trivalent chrome conversion coating approved to MIL-DTL-81706/MIL-DTL-5541F Class 1A and 3.

Products	Order Item Number	Form		Application Method				Substrate			Chemistry		
		Liquid	Spray	Immersion	Brush	Magnesium	Aluminum	Reactive	Dry in Place	Military Approvals	Hex Chrome	Tri Chrome	Non-Chrome
Alodine® 1000™ LIQUID	595895	X	X	X	X		X	X			X		
Alodine® 1000™ RTU	598168	X	X	X	X		X	X			X		
Alodine® 1132™ TOUCH-N-PREP® COATING	592939				X		X		X	X		X	
Alodine® 120™ BRUSH KIT	592726	X			X		X	X		X	X		
Alodine® 1200S™	593964		X	X	X		X	X		X	X		
Alodine® 1200S™ RTU BRUSH	595232	X			X		X	X			X		
Alodine® 1201™	594418	X	X	X	X		X	X		X	X		
Alodine® 1500™	594237	X	X	X	X		X	X		X	X		
	777781	X	X	X	X		X	X		X	X		
Alodine® 1600™	1006652	X	X	X		X	X	X		X	X		
	594871	X	X	X		X	X	X		X	X		
	598219	X	X	X		X	X	X		X	X		
Alodine® 1600™ RTU	772466	X	X	X		X	X	X			X		
Alodine® 2600™ MAKEUP	595129	X	X	X			X	X					X
	597203	X	X	X			X	X					X
	597966	X	X	X			X	X					X
Alodine® 4595™	599033	X	X	X			X	X					X
	599011	X	X	X			X	X					X
Alodine® 5200™ MAKEUP	594142	X	X	X		X	X	X	X				X
	596088	X	X	X		X	X	X	X				X
Alodine® 5700™	592968	X	X	X		X	X	X	X		X	X	X
	971650	X	X	X		X	X	X	X		X	X	X
	594136	X	X	X		X	X	X	X		X	X	X
	595996	X	X	X		X	X	X	X		X	X	X
Alodine® 5700™ WIPES	869854				X	X	X	X	X				X
Alodine® 600™	594038		X	X	X		X	X		X	X		X
Alodine® 600™ RTU	594094	X	X	X	X		X	X		X	X		X
Alodine® 713™ MAKEUP	595582	X	X	X			X	X			X		
Alodine® 871™ TOUCH-N-PREP® COATING	953761				X		X		X	X		X	
	887197				X		X		X	X		X	
Alodine® T 5900™	756387	X	X	X			X	X		X		X	
	756391	X	X	X			X	X		X		X	
Alodine® T 5900™ RTU	772743	X	X	X			X	X				X	
	772744	X	X	X			X	X				X	



Surface Treatment

POST-TREATMENT

LIGHT METALS

These products are designed to enhance the performance of our conversion coating products for light metal applications especially aluminum substrates.

Deoxylyte® 100 NC™ – Liquid chromium-free, sealing rinse for aluminum that promotes paint adhesion and provides additional corrosion protection when used over conversion coatings.

Deoxylyte® 200 NC™ – Liquid chromium-free, sealing rinse for aluminum that promotes paint adhesion and provides bare corrosion protection when used over conversion coatings. It also produces a hydrophilic surface.

Products	Order Item Number	Reactive	Spray	Immersion	Substrate			Non-Chrome	Organic	Ambient	DIW Rinse/After	Wet	Paint System	
					Steel	Galvanized	Aluminum						Powder	E-Coat
Deoxylyte® 100 NC™	595234	X	X	X			X	X	X	X	X	X	X	X
	643710	X	X	X			X	X	X	X	X	X	X	X
Deoxylyte® 200 NC™	596751	X	X	X			X	X			X	X	X	
	597704	X	X	X			X	X			X	X	X	



MIXED METALS

These products are designed to enhance the performance of our conversion coating products for mixed metal applications.

Deoxylyte® 54 NC™ – Acidic, inorganic, liquid post treatment chemical used in immersion and spray final rinses to improve paint adhesion and to minimize under film corrosion and blistering.

DX™ Rinse Aid – Highly concentrated liquid material used in intermediate and/or final rinse stages of cleaning plastics to assist in sheeting the final rinse water off the parts.

Parcolene® 50NC™ – Treatment is designed for use over phosphate coatings and is applied by spray or immersion. The chromium-free conversion coating agent increases the corrosion resistance of the coatings when painted.

Parcolene® 7100™ – Post treatment chemical is a patented, chromium-free post treatment especially formulated for use over iron phosphate conversion coatings.

Parcolene® 7100™ RTU – Ready-to-use, patented, chromium-free, post treatment chemical especially formulated for use over iron phosphate conversion coatings.

Parcolene® 95B™ – Defoamer for most Parcolene® Post Treatment spray products. If the bath foams excessively add Parcolene® 95B™ in small increments of 1/10 fluid ounce per 100 gallons while circulating the solution until the foam subsides.

Parcolene® 99 CWN™ – Chromium-free product specifically formulated as a conversion coating/post-treatment process designed for zinc phosphate lines that process a high percentage of aluminum metal.

Parcolene® 99X™ – Patented, chromium and phosphate-free post treatment that increases paint adhesion and corrosion resistance of metal surfaces for use over all types of conversion coatings used in the pretreatment of steel, zinc, and aluminum surfaces.

Parcolene® LS 7200™ – Dry-in-place post treatment chemical is a patented, chromium-free post treatment especially formulated for use in combination with Bonderite® LS-1™ conversion coating on laser cut substrates.

Products	Order Item Number	Substrate										Paint System			
		Reactive	Spray	Immersion	Steel	Galvanized	Aluminum	Non-Chrome	Organic	Ambient	DIW Rinse/After	Wet	Powder	E-Coat	
Deoxylyte® 54 NC™	621105	X	X	X	X	X	X	X	X		X	X	X	X	X
DX™ Rinse Aid	594788		X	X				X	X	X		X	X		
	595840		X	X				X	X	X		X	X		
Parcolene® 50NC™	594378	X	X	X	X	X	X	X		X	X	X	X	X	X
	597452	X	X	X	X	X	X	X		X	X	X	X	X	X
	771997	X	X	X	X	X	X	X		X	X	X	X	X	X
Parcolene® 7100™	594309	X	X		X	X		X	X	X			X		
	596456	X	X		X	X		X	X	X			X		
Parcolene® 7100™ RTU	595421	X	X		X	X		X	X	X			X	X	
	772221	X	X		X	X		X	X	X			X	X	
Parcolene® 95B™	594339		X												
Parcolene® 99 CWN™	596354	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	772288	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Parcolene® 99X™	665553	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	745500	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	772546	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Parcolene® 99X™	717257	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Parcolene® LS 7200™	595548	X	X	X	X			X	X	X			X		



Surface Treatment

PAINT STRIPPERS

ALKALINE

These are formulated hot strippers to remove cured paint from a variety metal substrates.

P3® Hot Stripper 50™ – Especially formulated for immersion or spray application on painted steel surfaces.

P3® Hot Stripper 3000™ – Designed for the removal of cured paint from metal substrates. Highly recommended for aluminum, providing excellent etch resistance and performance.

P3® Hot Stripper 301™ – Paint hot stripper for aluminum, various soft metals and steel substrates.

Products	Order Item Number	Application/System		Substrate		Temperature
		Immersion	Spray	Steel	Aluminum	Operating Temperature
P3® Hot Stripper 50™	594431	X	X	X		200°F-240°F
	897780	X	X			200°F-240°F
P3® Hot Stripper 3000™	979781	X		X	X	225°F-290°F
P3® Hot Stripper 301™	677484	X		X	X	158°F-176°F
	738215	X		X	X	158°F-176°F

ADDITIVES

These are formulated additives to enhance the performance and extend the bath life of our hot stripper products.

P3® Hot Stripper Additive 15™ – Especially formulated for use in highly alkaline solutions to assist in the removal of paint.

P3® Hot Stripper Additive 16™ – Organic, liquid product designed specifically for accelerating paint stripping operations in conjunction with P3® Hot Stripper 50™.

P3® Hot Stripper Additive 19™ – Especially formulated for use in highly alkaline solutions to assist in the removal of paint. It is used to permit the removal of the most difficult to strip finishes and also to accelerate the removal process.

Products	Order Item Number	Application/System		Substrate		Temperature
		Immersion	Spray	Steel	Aluminum	Operating Temperature
P3® Hot Stripper Additive 15™	967452	X		X	X	200°F-240°F
	594246	X		X	X	200°F-240°F
P3® Hot Stripper Additive 16™	595127	X		X	X	200°F-240°F
P3® Hot Stripper Additive 19™	772408	X		X	X	200°F-240°F
	772409	X		X	X	200°F-240°F



Surface Treatment

SPECIALTY PRODUCTS

ANTI-WELD SPATTER

This is an easily cleaned coating applied to metal prior to welding to reduce the adherents of weld spatter that can cause surface imperfections.

Parco® AWS 104™ – Water-based, body-in-white anti-weld spatter agent material that stays wet after application.

Products	Order Item Number	Liquid	Concentration	Spray	Application		Temperature Range
					Hand Wipe		
Parco® AWS® 104™	593055	X	100%	X	X		Ambient

RINSE AID

This specially formulated product prevents water spotting prior to painting plastic surfaces.

P3® Polyprep® Rinse 400™ – Rinsing aid especially designed for use after plastic cleaning in plastic pretreatment operations. P3® Polyprep® Rinse 400™ assists in the displacement and removal of solids-laden water, thereby minimizing water spotting on cleaned plastic and painted plastic parts.

Products	Order Item Number	Application	Substrate	Concentration	Temperature	Contents	Phosphate-Free
					Operating Temperature	Liquid	
P3® Polyprep® Rinse 400™	593070	Spray	Plastic	0.03-0.07%	70°F-110°F	X	X
	598718	Spray	Plastic	0.03-0.07%	70°F-110°F	X	X

ACID INHIBITORS

P₃® Rodine® is the worldwide standard for acid inhibitors – a reputation earned by on-the-job performance and proven results. P₃® Rodine® acid inhibitors are formulated to insure cost-saving dependability, without slowing production.

Rodine® 102™ – Powdered chemical designed to inhibit the attack of sulfamic and sodium bisulfate solutions on mild steel, stainless steel, copper and/or brass during industrial cleaning operations.

Rodine® 103™ NPF – Unique liquid inhibitor designed specifically for use in industrial cleaning operations to prevent acid attack on mild steel, stainless steel and copper or brass.

Rodine® 145L™ – Liquid inhibitor especially designed for the reduction of acid attack on zinc and galvanized surfaces. It will also help protect mild steel, copper, brass and stainless steel from attack by several acids.

Rodine® 2010™ – Low toxicity, nonflammable, highly soluble, low viscosity, liquid metal loss inhibitor for use especially in tetraammoniated ethylenediaminetetraacetic acid (EDTA) cleaning solutions.

Rodine® 213 SF™ – Organic, liquid, cationic corrosion inhibitor especially designed to inhibit the attack of hydrochloric acid on iron and steel during industrial cleaning operations. It also inhibits acid attack on copper and brass.

Rodine® 31A™ – Liquid, cationic acid inhibitor designed specifically for use in chemical cleaning operations where chloride-free solvents such as citric, hydroxyacetic and formic acids are used.

Rodine® 3305™ – Low viscosity liquid, non-foaming* inhibitor for use in hydrochloric acid continuous or batch type pickling operations.

Rodine® 426™ – Low toxicity organic liquid, cationic corrosion inhibitor especially designed to inhibit the attack of hydrochloric acid on iron and steel during industrial cleaning operations.

Rodine® 55™ – Amber-colored, powdered inhibitor designed for use in conventional sulfuric acid pickling operations.

Rodine® 85™ – Soluble, low foaming, liquid inhibitor formulated for use in conventional sulfuric acid pickling operations. Effective on any type of steel, and can be used at any acid concentration.

Products	Order Item Number	Form	Maximum Temperature	Main Use	Used With the Following Acids	NSF Registered	Compatible Metals
Rodine® 102™	594613	Powder	180°F	Acid Inhibitor	Sulfuric, Sodium bisulfate	Yes	See Technical Process Bulletin*
	594881						
Rodine® 103™ NPF	621410	Liquid	150°F	Acid Inhibitor	Phosphoric, Sulfuric, Hydrochloric, Hydroxyacetic (Glycolic), Citric, Oxalic, Sulfamic, Tataric, Sodium bisulfate, Acetic	Yes	See Technical Process Bulletin*
	693536						
Rodine® 145L™	898822	Liquid	120°F	Acid Inhibitor	Sulfamic, Citric, Hydrochloric, Sulfuric	No	See Technical Process Bulletin*
	899060						
Rodine® 2010™	1314676	Liquid	350°F	Boiler Clean Out	EDTA and Ammoniated EDTA	No	See Technical Process Bulletin*
	1380617						
Rodine® 213 SF™	1393854	Liquid	220°F	Acid Inhibitor	Hydrochloric	No	See Technical Process Bulletin*
	1393855						
Rodine® 31A™	592762	Liquid	180°F	Acid Inhibitor	Phosphoric, Sulfuric, Hydroxyacetic (Glycolic), Citric, Formic, Oxalic, Sulfamic, Tataric, Sodium bisulfate	No	See Technical Process Bulletin*
	592763						
	593979						
Rodine® 3305™	831469	Liquid	See TPB*	Acid Inhibitor	Hydrochloric	No	See Technical Process Bulletin*
Rodine® 426™	594279	Liquid	220°F	Acid Inhibitor	Hydrochloric	No	See Technical Process Bulletin*
Rodine® 55™	594039	Powder	190°F	Acid Inhibitor	Sulfuric	No	See Technical Process Bulletin*
Rodine® 85™	594521	Liquid	195°F	Acid Inhibitor	Phosphoric, Citric, Oxalic, Sulfamic, Sodium bisulfate, Acetic	No	See Technical Process Bulletin*

* For Technical Process Bulletins, go to www.henkeln.com/industrial or call 1.800.562.8483.



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, sealants and surface treatments, and the design, construction and implementation of dispensing and curing systems. Whether you need competent recommendations on chemical properties, or a 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 Engineering Centers play host to a battery of testing equipment. Here, experienced technicians conduct a multitude of tests, such as surface contamination, corrosion resistance, deforming, fixture, tensile and peel strength.

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 or surface treatment 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

Henkel engineers are frequently called upon to provide process simulations of customer parts on short production runs. Our prototyping capability provides valuable data regarding the feasibility of full-scale manufacture.



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

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



OEM Training Services

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

<p>PRODUCT WORKSHOPS</p>	<p>OEM WORKSHOP Full or half-day on-site product training customized to address specific design needs at your manufacturing location.</p> <p>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, sealants or surface treatments.</p>
<p>INDUSTRY WORKSHOPS</p>	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>HENKEL OFFERS MANY OTHER WORKSHOPS WHICH CAN BE CUSTOMIZED TO PROVIDE TRAINING FOR VARIOUS INDUSTRIES AND DEVICES.</p>
<p>SERVICES</p>	<p>PLANT SURVEY A detailed manufacturing process evaluation performed by a Henkel Specialist to identify and document potential cost savings and process improvements.</p>



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