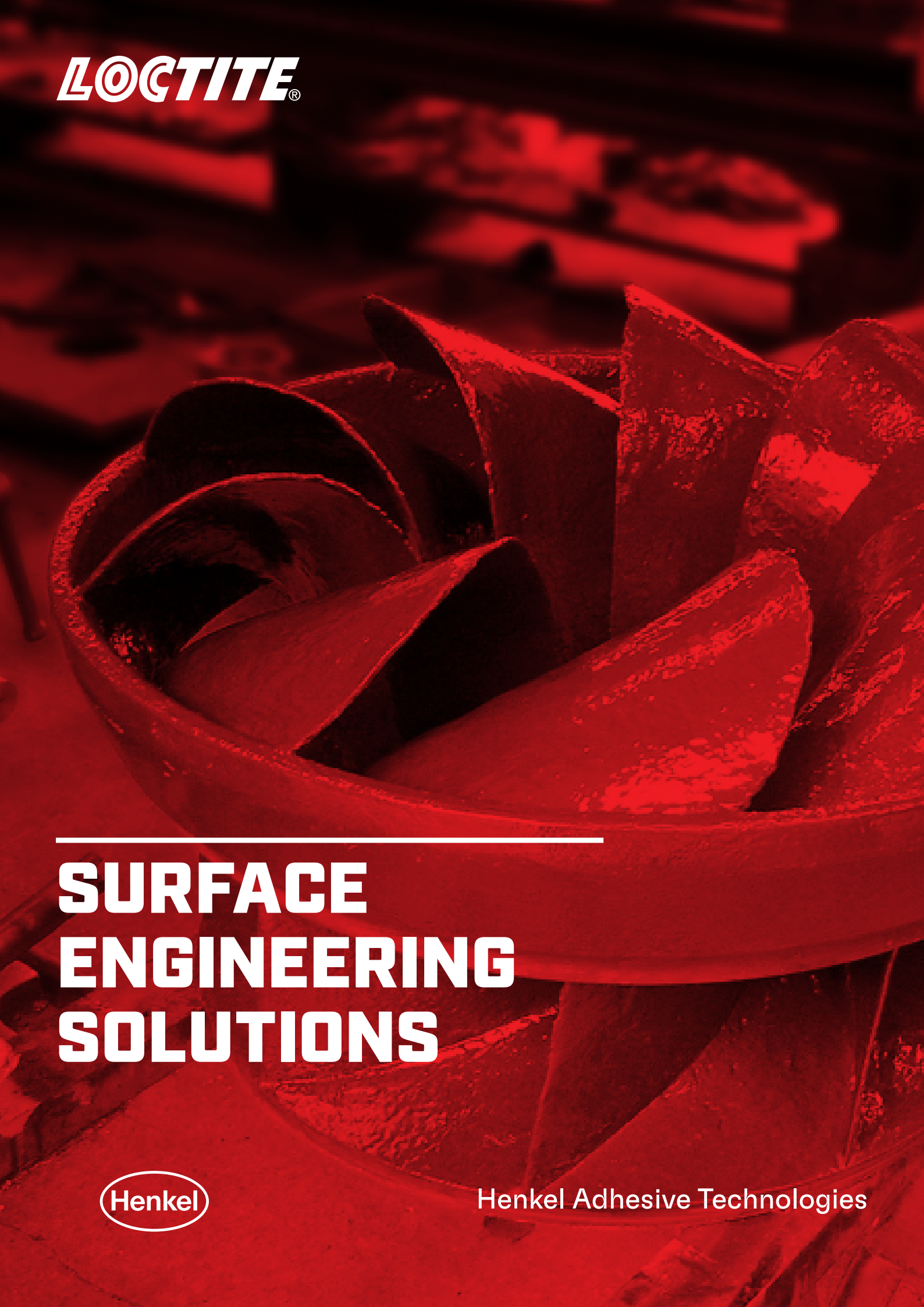
LOCTITE®



SURFACE ENGINEERING SOLUTIONS

Henkel

Henkel Adhesive Technologies

CONTENTS

Henkel's Solutions for All Surface Engineering Needs

THE CHALLENGE

Protecting industrial equipment and machinery is crucial for any kind of harsh industrial environments. Industrial parts are very often damaged by particle abrasion wear, chemical and cavitation erosion, corrosion and mechanical damage. Not properly protecting parts impairs their efficiency and initial functionality and safety at work can be impacted, leading to costly acquisition of new parts.

HENKEL'S SOLUTION

At Henkel, we understand plant maintenance – and the challenge you face in ensuring reliability, safety and durability. We offer you an extensive network of experts, knowledge and innovative technologies to master this challenge.

Partner with us to benefit from our competencies and to achieve the best results for your maintenance and repair needs:

INCREASE RELIABILITY
of worn parts by restoring them to a serviceable condition

IMPROVE SAFETY
by preventing occupational accidents due to part failure

SAVE TIME
by minimising downtime and extending part life

REDUCE COSTS
by avoiding part replacement and reducing spare-part inventories

This brochure is designed to give you a detailed overview of our extensive product portfolio for surface engineering needs. To ensure that you get the best solution for your maintenance needs, please contact a Henkel Engineer for technical consultancy.

Whatever You Rebuild, Repair and Protect...

...Find the Right Solution!

Expert Training

› Maintenance Workshop Training from Henkel provides your maintenance team with the necessary skills, knowledge and tools to reduce plant downtime and drive down maintenance costs.

› Expert Training for Surface Engineering Needs: page 6

Technical Consultancy

› Our products have been designed to meet the specific challenges of your industry. With an extensive network of sales and technical engineers around the world we offer you professional consultancy to find the best solution for your specific surface engineering needs.

› Technical Consultancy for Surface Engineering Needs: page 7

Metal Working

› We combine superior metal products together with application systems and top technology support, allowing you to maximise productivity while reducing costs.

Your Partner for Maintenance and Repair Solutions

Henkel offers you more than state-of-the-art adhesives, sealants and surface treatment products. We give you access to our unique expertise covering the entire value chain. So whatever you rebuild, repair or protect, with our technical consultancy and expert training we are able to offer you specific solutions for your industry and your maintenance needs.

Cleaning & Pretreatment

› Correct surface preparation is the most important factor affecting the total success of any surface treatment. Without correct surface profile and surface cleanliness coating systems will quickly fail. To ensure high-quality applications we offer superior cleaning and pretreatment products like surface cleaners and corrosion inhibitors.

› LOCTITE® Cleaning & Pretreatment Products: page 8

Filling & Protecting

› To permanently repair, rebuild and restore damaged machinery, equipment, floors and walls requires specific products to put worn parts back to a serviceable condition. We offer a range of putty and pourable formulations for aluminium, steel and concrete.

› LOCTITE® Metal Repair Solutions: page 16
› LOCTITE® Concrete Repair Solutions: page 16

Coating

› Protecting machinery and equipment against external attack is a challenge in any industry. Protective coatings and compounds offer maintenance solutions to the problems caused by wear, abrasion, erosion, cavitation, chemical attack and corrosion. Our products are available in sprayable, brushable and trowelable formulations.

› LOCTITE® Protective Coatings & Compounds: page 10

EXPERT TRAINING

LOCTITE® Maintenance Reliability Workshop Training from Henkel provides your maintenance team with the necessary skills, knowledge and tools to reduce plant downtime and drive down maintenance costs.

The workshops are suitable for all engineers. Conducted on the customer's premises, training can be tailored to meet individual needs through a plant tour and pre-workshop survey. Training includes materials and a review of the common causes of plant and equipment failure and their prevention.

Contact Henkel now for more details and to arrange training for your maintenance team.

Scan here to find out more.

Our highly experienced Henkel Engineers are committed to providing the highest level of technical support and assistance in the industry. Working closely with local industrial suppliers and selected engineering service agents, our Application Engineers provide full process support – from maintenance assessment, performance and analytical testing to implementation of solutions – to find the right solutions for your needs.

For your surface engineering needs we offer you technical consultancy in:

- Surface cleaning
- Surface preparation
- Surface pretreatment
- Selecting repair products
- Selecting surface protection products
- Application process
- Control recommendation
- Application tips

Correct surface preparation is crucial for the successful application of both metal repair products and protective coatings and compounds. Good surface preparation will:

- Improve adhesion to parts
- Prevent corrosion between the surface and product used
- Extend maintenance intervals

The two most important factors for a successful application are surface profile and surface cleanliness.

1. SURFACE PROFILE

Improve adhesion by increasing surface area and providing a keyed anchor pattern.

Surface profiles vary depending on the type and size of abrasive particles impacting the surface. A bad surface profile provides poor anchor pattern, resulting in adhesive failure.

Correct profile but insufficient coating causes surface peaks which may be exposed to corrosion and / or contamination.

It is critical to achieve the correct profile depth and product coating thickness. LOCTITE® product applications require a minimum 75µm surface profile. Only with this anchor pattern and a sufficient coating layer, can maximised coating adhesion be guaranteed.

COATING SURFACE

The best way to achieve the correct surface profile is abrasive blasting. It not only removes visible surface rust and contaminants, but also creates the ideal surface roughness for bonding. See following table for surface specifications.

Surface preparation grades of blast

RUST GRADE

A	Steel with mill scale layer intact; very minor or no rusting
B	Steel with spreading surface rust and the mill scale commenced flaking
C	Rusty steel with mill scale layer flaked and loose or lost but only minor occurrence of pitting
D	Very rusty steel with mill scale layer all rusted and extensive occurrence of pitting

BLAST CLASS

1	(SP-7/N4)	Very light over clean with removal of loose surface contaminants
2	(SP-6/N3)	Substantial blast clean with widespread, visible contaminant removal and base metal colour appearing
2,5	(SP-10/N2)	Intensive blast clean leaving shading grey metal with only contaminants
3	(SP-5/N1)	Complete blast clean with consistent metal colour all over and no visible contaminants

2. SURFACE CLEANLINESS

Chemical contaminants that are not readily visible, such as chlorides and sulphates, attract moisture through coating systems resulting in premature failure. For this reason it is fundamentally important to clean all substrates with an industrial-strength cleaner and degreaser. Heating the device before cleaning can facilitate the removal of contaminants.

LOCTITE® SF 7840™ – Cleaner and degreaser

IDH Number: 2046049 (709 ml), 2046047 (3.78 L), 2046048 (18.9 L)

- Before abrasive blasting
- Meets the requirements of a wide range of industrial cleaning applications
- Biodegradable, solvent-free, non-toxic and nonflammable, diluted with water (Rated USDA-C1)

LOCTITE® SF 7063™ – Parts Cleaner

IDH Number: 2098749 (400 ml)

- Solvent-based general parts cleaner
- Ideal for use prior to adhesive bonding and sealing applications
- Leaves no residue
- Removal of most greases, oils, lubrication fluids, metal cuttings and fines from all surfaces

LOCTITE® SF 7467™ – Flash rust prevention

IDH Number: 2773062 (5 L)

- Pretreatment on large surfaces to avoid any flash rust
- Easy and fast to apply on freshly blasted surface steel
- Prevent flash rusting for up to 7 days

PROTECTIVE COATINGS AND COMPOUNDS

LOCTITE® Protective Coatings and Compounds offer maintenance solutions to problems caused by wear, abrasion, erosion, chemical attack and corrosion. They are available in trowelable, brushable and sprayable formulations with special fillers for tough conditions and are ideal for all those large-scale repairs that have to last. Typical applications for this product range include air ducts, pumps, heat exchangers, centrifuges, impellers, cyclones, pipes, tanks, bunds, etc.

LOCTITE® Protective Compounds provide excellent wear resistance and superior adhesion. Filled with ceramic particles, specific to the different service conditions, they protect against abrasion and extend the service life of a wide range of plant areas and plant equipment. Their key advantage is their capability to create a sacrificial and renewable working surface, protecting the structural integrity of the original substrate.

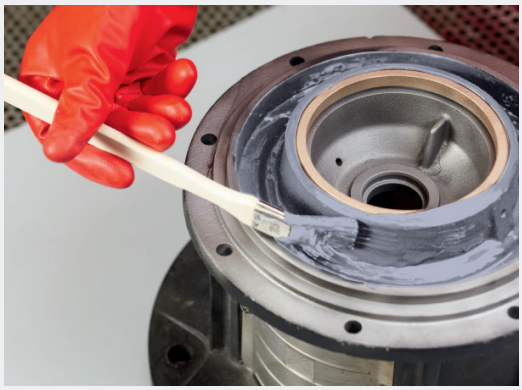
LOCTITE® Protective Coatings are designed to protect against corrosion and chemical attack.

Why choose LOCTITE Protective Coatings and Compounds?

Traditional repair methods such as hard metal welding or flame spraying are expensive and difficult to use for large surfaces. But LOCTITE® Protective Coatings and Compounds are easily applied on surfaces of all sizes and offer the extra benefit of corrosion protection. In addition, LOCTITE® Protective Coatings and Compounds don't create heat stress during the application.

Key benefits:

- Restore worn surfaces and extend the life of new as well as old parts
- Increase part efficiency
- Save costs by avoiding part replacement and reducing spare-part inventories
- Protect parts against abrasion, erosion, chemical attack and corrosion
- Excellent chemical resistance for effective protection of assemblies



Key factors to consider when choosing the right LOCTITE® Protective Coating or Compound:

Particle size

To improve abrasion resistance, the abrasive materials and the LOCTITE® Protective Coatings and Compounds should have similar particle sizes. The range of LOCTITE® Protective Coatings and Compounds offers grades for coarse particles as well as fine particle protection and some specific products for pure chemical attack or corrosion protection. A special product offering high impact resistance is also included in the range.

Temperature resistance

Operating temperatures of LOCTITE® Coatings and Compounds range from -30 to +120°C. Some special grades, such as LOCTITE® PC 7336™, can be used up to 232°C. These special grades require post curing to achieve their ultimate high temperature performance.

Chemical and corrosion resistance

Thanks to the special epoxy matrix of LOCTITE® Coatings and Compounds, this range of products are resistant to most types of chemical attack. All our products offer good protection against fresh water and sea water, ammonium sulphate and sodium hydroxide. Specific products also resist strong chemicals such as sulphuric acid and urea.

A comprehensive overview for the chemical resistance of LOCTITE® Coatings and Compounds is available – please contact your local Henkel Technical Support Team for further information.

Preventing flash rusting

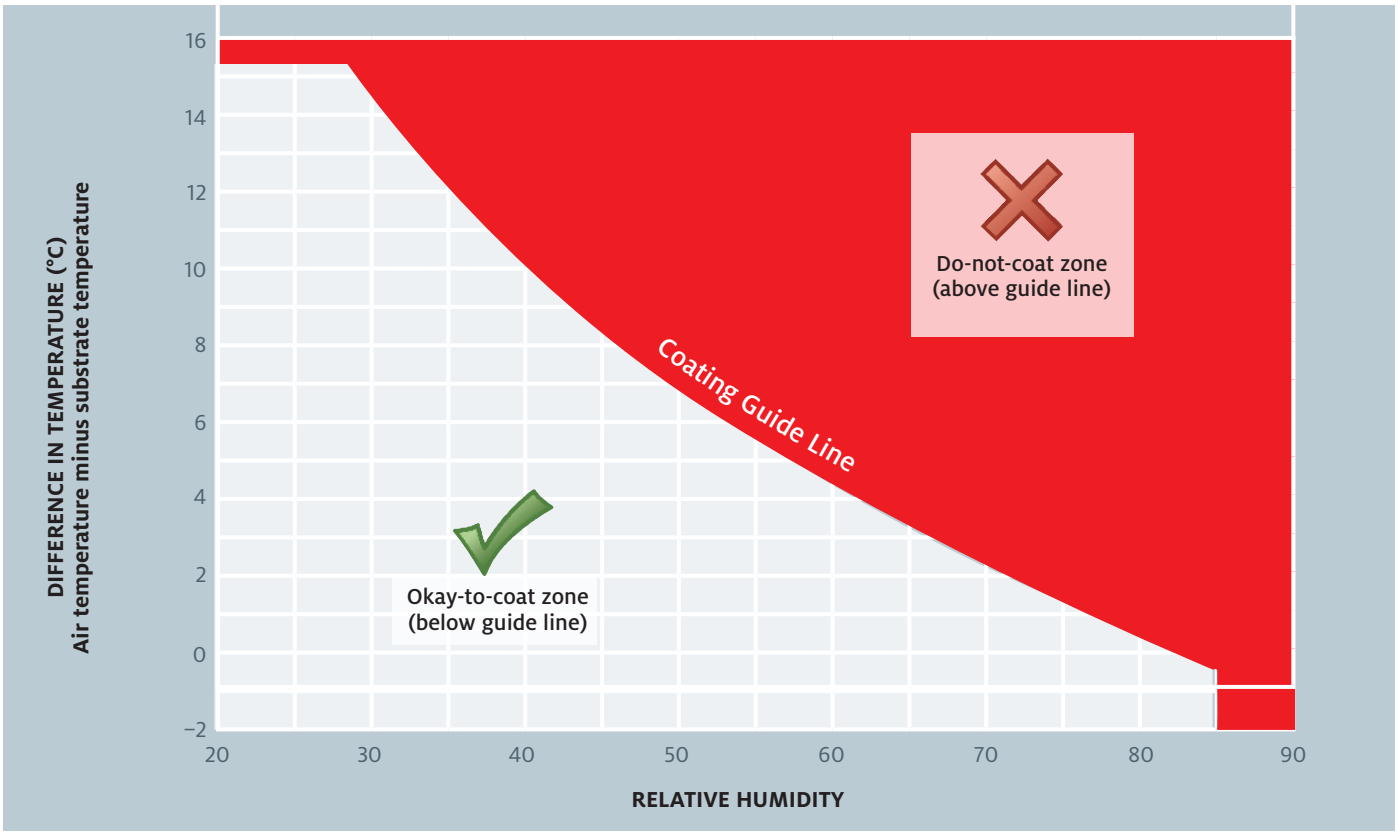
In high humidity conditions, flash rusting of a newly prepared metal surface can develop within minutes, causing contamination which will need to be removed again before a coating is applied. A thin coat of LOCTITE® SF 7467™ applied as soon as possible after preparing a metal surface will prevent flash rusting.

Moisture-free surface

It is critical to the success of most coating systems that the surface is completely free of moisture prior to and during product application and curi**ng.**

Dew point

Condensation of water (dew) from the atmosphere onto the surface can occur given the right conditions. For a given set of conditions, the temperature at which condensation will occur is called the dew point. As long as the surface temperature is 3°C (or more) above the dew point, it is generally considered safe to coat as far as risk of condensation is concerned.



Pre-coating for maximum adhesion

After surface preparation, pre-coat the application surface by rubbing the mixed composite into the substrate. This technique, called “wetting out the surface,” helps the repair material fill all the crevices in the application surface, creating a superior bond between the composite and substrate. The rest of the mixed product can then be applied over the pre-coat to finish the application.

Creating a smooth finish

Smooth out the uncured product with a warm trowel for a smooth, glossy finish.

Wear indicator

When applying two coats of LOCTITE® Coatings and Compounds, different colours can be used to indicate wear. When the first coat begins to wear the second coat’s colour will show through, providing an accurate visual indicator of wear.

Special recommendations for sprayable products

As for all LOCTITE® Protective Coatings and Compounds best coating results are obtained by applying the product in a specific layer thickness. This is especially important for application on vertical surfaces.

For best results also in corners and edges, it is recommended to smooth angles to a radius of 3mm.

When using LOCTITE® PC 7255™ it is recommended to warm the product prior to application to ensure easy spraying and a smoother surface.

PROTECT YOUR EQUIPMENT FROM WEAR AND CORROSION

- >> Restores worn surfaces
- >> Provides wear and impact resistance
- >> Extends life of new parts
- >> Protects from corrosion / erosion
- >> Available in trowelable, sprayable and brushable forms

WHAT TYPE OF CORROSION AND WEAR ARE YOU EXPERIENCING?

External Corrosion Protection (Weathering)

Fine Particle

Solution

	LOCTITE® PC 7321™ Flexible Coating	LOCTITE® PC 7255™ Sprayable Ceramic	LOCTITE® PC 7227™ Brushable Ceramic
Colour	Grey	Green	Grey / White
Maximum Temperature	70°C Dry**	93°C Wet**	93°C Wet**
Working Time*	20 min.	40 min.	30 min.
Cure Time*	24 hrs.	6 hrs.	24 hrs.

*at 77°F (25°C)

** Cure & surface drying time at 25°C

Additional Products

Name	*Feature*	*IDH No.*	*Pkg. Size*
LOCTITE® PC 7222™ Wear Resistant Putty	Protects badly worn surfaces	209827	1.35 kg kit
LOCTITE® PC 7335™ High Temperature Brushable Ceramic	288°C	978760	1 kg
LOCTITE® PC 7336™ High Temp. Silicon Carbide Pneu Wear	232°C	Available upon request	10 kg
LOCTITE® PC 9462™ Backing Compound	High Compressive Strength	408041	10 kg
LOCTITE® PC 9465™ High Impact Backing Compound	High Impact Resistance	408032	10 kg
LOCTITE® PC 7319™ Chemical Resistant Coating	High Chemical Resistance	209816	5 kg

LOCTITE® PC 7321™ Flexible Coating

Flexible coating for external corrosion protection. This 2K polysuplhide based coating provides smooth, glossy finish for external corrosion protection under C5M environment. The solvent free formulation can be applied by brush, roller or spray.

IDH	Package Size
2809748	(Resin Grey - Part A)
2809749	(Resin White - Part A)
2833725	(Resin Light Grey - Part A)
2833726	(Hardener - Part B)

30 kg kit (20 L)

LOCTITE® PC 7255™ Sprayable Ceramic

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

IDH	Package Size
2494032	1125 ml cartridge – Green
*Potable water approved.	
2490598	1125 ml cartridge – Grey

LOCTITE® PC 7227™ Brushable Ceramic Grey

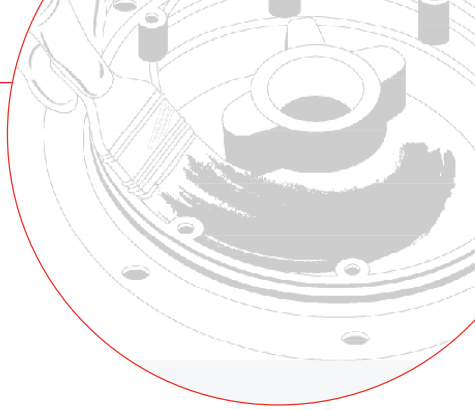
Smooth, wear-resistant, low-friction coating to combat turbulence and cavitation on components such as pump housings and impellers.

IDH	Package Size
978759	1 kg kit – Grey
978758	2 kg kit – Grey

LOCTITE® PC 7228™ Brushable Ceramic White

IDH	Package Size
1050263	1 kg kit white

Scan here to learn more about our complete line of Wear Protection Coatings:



CLEANERS/STEPS FOR PREP:

1. Clean with SF 7840™ Cleaner & Degreaser
2. Mechanically abrade
3. Work product into surface
4. Build to desired geometry

Wear

Sliding | **Impact**

Particle Size (Sliding) | **Fast Cure High Impact** | **High Impact** (Impact)

Larger Particle | **Smaller Particle / Slurry** (Particle Size)

LOCTITE® PC 7218™ Wearing Compound	LOCTITE® PC 7226™ Pneu-Wear	LOCTITE® PC 7332™ Silicon-Carbide Pneu-Wear	LOCTITE® PC 9593™ Fast Cure High Impact Wearing Compound	LOCTITE® PC 9313™ High Impact Wearing Compound
Grey	Grey	Grey	Blue	Grey
121°C	121°C	120°C	120°C	121°C
30 min.	30 min.	30 min.	15 min.	30 min.
7 hrs.	6 hrs.	6 hrs.	4 hrs.	6 hrs.

LOCTITE® PC 7218™ Wearing Compound

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

IDH	Package Size
2888813	10 kg kit

LOCTITE® PC 7226™ Pneu-Wear

Resists fine particle abrasion caused in pipe elbows of pneumatic conveyor systems.

IDH	Package Size
2725119	10 kg kit

LOCTITE® PC 7332™ Silicon-Carbide Pneu-Wear

Designed to protect, rebuild and repair high wear areas of slurry processing equipment under wet conditions (90°C), it can also be used for fine particle abrasion under dry conditions in transport elbows, chutes and other equipment. Its silicon carbide filled 2K epoxy system gives it a wide range of applications.

IDH	Package Size
2565509	10 kg kit

LOCTITE® PC 9593™ Fast Cure High Impact Wearing Compound

Designed to protect, rebuild and repair equipment subjected to impact due to dropping, rolling, and sliding of large particles. With a 4-hour cure, it means reduced downtime – so equipment gets up and running faster, and keeps running longer.

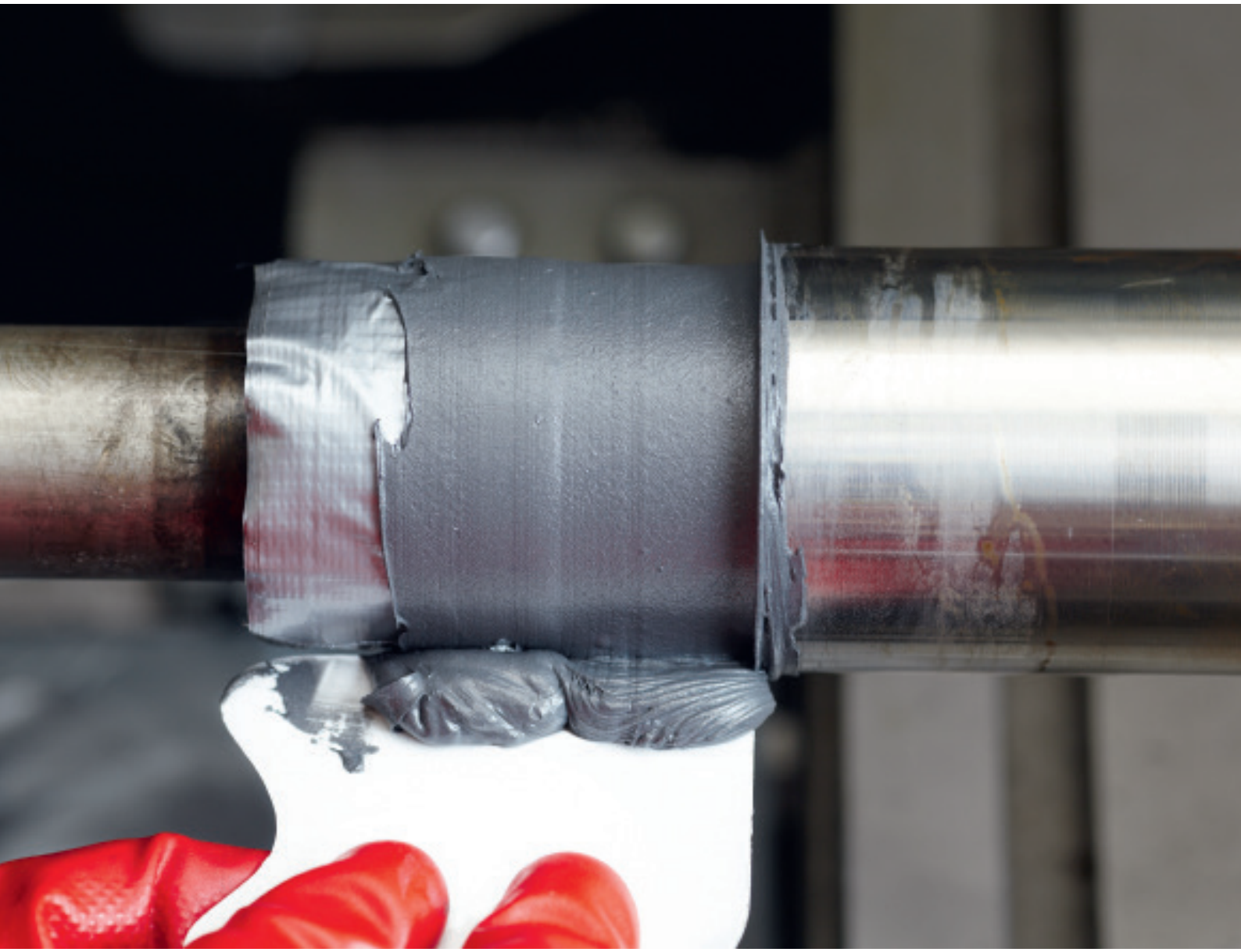
IDH	Package Size
2610627	3 kg kit

LOCTITE® PC 9313™ High Impact Wearing Compound

Grey, 2-part, rubber modified epoxy. With impact resistance superior to ceramic tile, it is recommended for lining and protecting flumes, troughs, elbows, hoppers, discharge chutes, and other processing equipment that is exposed to both abrasion and impact.

IDH	Package Size
1327836	11.35 kg. kit

METAL AND CONCRETE SURFACES



LOCTITE® metal repair compounds are designed to repair, rebuild and restore worn metal parts without the need of heat or welding. Typical applications include cracks in housings, worn keyways in shafts and collars, worn cylindrical shafts, etc.

LOCTITE® concrete repair products are designed to guarantee fast, reliable and long-lasting repairs. They bond to concrete, wood, glass, steel and other construction materials. Typical applications include ramps and loading areas, support beam and footer repairs, bridge decking and supports, concrete bunds and walls etc.

Why choose LOCTITE® Metal Repair Solutions?

Traditional repair methods such as hard face welding are time-consuming and expensive. Alternatively, LOCTITE® metal-filled compounds are easily applied and offer superior compressive strength and protection qualities.

Key benefits:

- Low-shrinking
- Superior adhesion to metal, ceramic, wood, glass and some plastics
- Excellent resistance to aggressive chemicals
- Choice of mild steel or non-metalic fillers
- Create durable repairs

LOCTITE® EA 3478™ 2-part, ferro-silicon filled epoxy resin system.

Why choose LOCTITE® Concrete Repair Solutions?

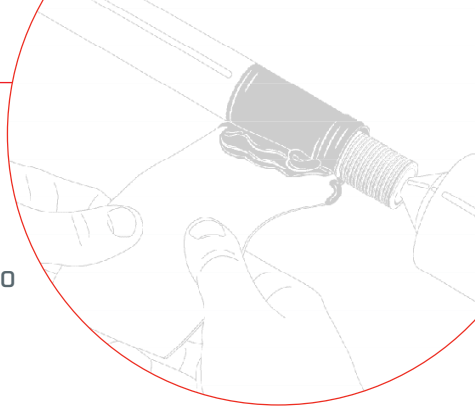
Traditional methods such as repairing floors or walls with conventional concrete need extensive time for curing. Alternatively, LOCTITE® concrete repair products are easily mixed, applied and cured after 45 minutes.

Key benefits:

- Fast curing in 1 hour
- Easy to mix and apply
- High compressive strength
- High Impact resistant
- Temperature resistant up to 1090°C
- Can be painted over

LOCTITE® PC 9410™:
Quicker and safer than conventional concrete.

METAL REBUILDING



REPAIR AND RESTORE DAMAGED METAL PARTS

>> Offers high compressive strength

>> Bonds to various substrates

>> Provides excellent resistance to some aggressive chemicals

REPAIR OR REBUILD DAMAGED PARTS

What material are you filling?

Steel

Putty | **Kneadable Stick** | **High Performance Chemical Resistance**

CLEANERS/STEPS FOR PREP:

1. Clean with SF 7840™ Cleaner & Degreaser
2. Mechanically abrade
3. Work product into surface
4. Build to desired geometry

Solution

	LOCTITE® EA 3471™ Steel Putty	LOCTITE® EA 3473™ Fast Set Steel Putty	LOCTITE® EA 3463™ IN 10 Minute Repair Epoxy	LOCTITE® EA 3478™ Superior Metal
Colour	Grey	Grey	Dark Grey	Grey
Maximum Temperature	107°C	93°C	121°C	121°C
Working Time*	30 min.	3 min.	3 min.	20 min.
Cure Time*	6 hrs.	10 min.	10 min.	6 hrs.
Compressive Strength	8,940 psi	7,380 psi	7,200 psi	19,490 psi

*at 77°F (25°C)

Additional Products

Name	*IDH No.*	*Pkg. Size*
LOCTITE® EA 9490™ Underwater Repair Epoxy	235487	113 g stick
LOCTITE® MR 2000™ Putty	235579	227 g can
LOCTITE® PC 7222™ Wear Resistant Putty	209827	1.35 kg kit

LOCTITE® EA 3471™ Steel Putty

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

IDH	Package Size
219292	454 g kit

LOCTITE® EA 3473™ Fast Set Steel Putty

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

IDH	Package Size
680036	500 g kit

LOCTITE® EA 3463™ IN 10 Minute Repair Epoxy

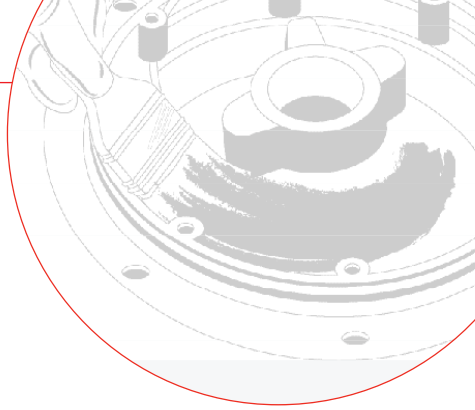
Kneadable, two-part paste. Working time is 3 minutes – sets in 10 minutes. Adheres to damp surfaces. Can be drilled, filed and painted. Ideal for emergency sealing of leaking tanks and pipes. Smooths welds, repairs small cracks in castings and fills oversized bolt holes.

IDH	Package Size
2896328	113 g

LOCTITE® EA 3478™ Superior Metal

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

IDH	Package Size
680035	1 kg kit



KEEP INDUSTRIAL OPERATIONS RUNNING SMOOTHLY

>> Chemical and corrosion resistance

>> High impact resistance

>> Vertical and horizontal application

>> Bonds to concrete, wood, metals, brick and other common building materials

HELPFUL HINTS:

- Vary consistency of LOCTITE® PC 9410™ for vertical applications
- Use LOCTITE® PC 9410™ for cold storage applications
- No concrete bonding agents are required
- Use a backer rod when filling deep expansion joints

GENERAL CONCRETE OR FLOOR REPAIRS?

General Concrete Repairs

Fast Cure Concrete and Floor Repairs

Floor Repairs

General Floor Repairs

Filling Expansion Resurfacing Damage Concrete

General Concrete Coating (Horiz. or Vert. Surfaces)

Solution

	LOCTITE® PC 9410™ Magna-Crete	LOCTITE® PC 9416™ Floor Fill	LOCTITE® PC 7319™ Chemical Resistant Coating
Colour	Grey	Grey	Grey
Maximum Temperature	1,093°C	107°C	93°C Wet **
Compressive Strength	13,000 psi	13,100 psi	10,000 psi
Working Time*	10 min.	40 min.	20 min.
Functional Cure*	1 hr.	24 hrs.	24 hrs.
Chemical Resistance	Fair	Good	Excellent

*at 77°F (25°C)

** Cure & surface drying time at 25°C

LOCTITE® PC 9410™ Magna-Crete

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

IDH	Package Size
235573	22.7 kg kit (5 gallon)

LOCTITE® PC 9416™ Floor Fill

A three-component, self-leveling, non-shrinking epoxy floor repair system. 100% solid, epoxy-based system for repairing holes in floors, spalled areas, ramps, stairs, cracks in floors, and for use in grouting applications. Stronger than concrete, it bonds to almost any clean substrate, and provides corrosion and chemical resistance.

IDH	Package Size
1400736	20 kg kit

LOCTITE® PC 7319™ Chemical Resistant Coating

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

IDH	Package Size
209816	5 kg kit

RUBBER REPAIR AND URETHANES

PREMIUM PERFORMANCE FOR ON-SITE RUBBER REPAIR

>> Repair gouges, cuts and worn edges on rubber belting
>> Non-shrinking and unaffected by oil, grease and water
>> Excellent flexibility and elongation

IS THIS FOR CONVEYOR BELTS?

Yes	No
	High Impact High Abrasion Rubber Repair

Solution

	LOCTITE® PC 7350™ Belt Repair	LOCTITE® PC 7383™ Rubber Repair Coating
Colour	Black	Black
Working Time	5 min.	50 min.
Tensile Strength	1,600 psi	2,175 psi
Functional Cure	2 hrs.	24 hrs.

LOCTITE® Dual Cartridge Dispenser - Manual 10:1

For use with 400 ml cartridges – IDH 1093940

Additional nozzles can be ordered as needed:

Loctite® Nozzles for 400 ml cartridges – 1372751

LOCTITE® SF Flex Etching Agent

Primer for Rubber Surfaces – IDH 235638 (82.5ml)

TEROSON® Bond All-In-One Primer

Primer for Metal Surfaces – IDH 2670909 (100ml)

LOCTITE® PC 7350™ Belt Repair

A premium rubber repair compound designed for conveyor and other rubber parts. Fast curing and self-leveling. Perfect for on-site repairs. Offers excellent abrasion resistance and outstanding adhesion to metal and rubber. Solvent-free.

IDH	Package Size
2073202	400 ml cartridge

LOCTITE® PC 7383™ Rubber Repair Coating

An innovative solution that bonds to both metal and rubber substrates and provides superior impact and abrasion resistance. The solvent-free, two component, room temperature cure coating can be applied to vertical surfaces or the underside of horizontal surfaces without slumping or falling off and allows repairs to be done faster than traditional rubber repair methods.

IDH	Package Size
2719844	1 kg kit

SCREENS, CHUTES, CYCLONES

SCREEN

Challenge

A leading mine in Australia experienced wear out of the horizontal member of the beam, leading to frequent downtime.

Solution

The worn out members were completely rebuilt with LOCTITE® PC 9313™ High Impact Wearing Compound with base coat of Brushable Ceramic.

Benefit	Previous solution lasted 3 – 4 weeks. Recent job done for the whole screen is running for the last 16 weeks with minimum wear. The customer has approved the product on site for future use on different applications.

CHUTES

Challenge

An Iron Ore Mine in Australia had their ceramic tiles broken / worn out at several places with continuous flow of iron ore at 70 T per hour and size around 40 mm. Needed either replacement or in situ repair.

Solution

LOCTITE® PC 9593™ Fast Cure High Impact Wearing Compound was used to rebuild the affected areas at a thickness from 6 – 12 mm.

Benefit	3X times life compared to existing solutions. Extend frequency of repair from 12 times to 4 times a year. Total cost saving around 100,000 AUD per year.

CYCLONE

Challenge

A leading Coal Mine in Australia experienced extreme wear in Cyclone Underflow Discharge Pan. Existing product was wearing too fast requiring constant repair. Additional issue of tiles missing in body of cyclone.

Solution

LOCTITE® PC 9313™ High Impact Wearing Compound was used to rebuild the affected areas.

Benefit	Extend time between wearing compound applications (4 x plus improvement). Allowed reallocation of shut down recourses to improve other areas. Also used in Cyclone main body to repair missing tiles– here it saved $50,000 per month until unit replaced.

CHUTE

Challenge

A leading Iron Ore Ship loader in West Australia. The Chute was lasting approximately 10 weeks before requiring patching or replacement. Commodity: Iron Ore› 35mm /10,000 TPH.

Solution

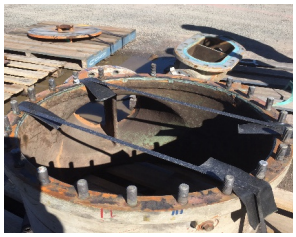
The inlet chute was prepared and lined with LOCTITE® PC 7218™ Wearing Compound 10-12 mm thickness.

Benefit	This resulted in no Hot Work Permits or tile replacement, and was completed in 5 Hours. The capital cost of Chute replacement was avoided, and the chute life increased by 10 weeks. This also reduced labour rates and access requirements.

APPLICATION CASE HISTORIES

PUMPS

TURBINE CONDENSATE PUMP



Challenge

Corrosion / Erosion of internals of Turbine Condensate Pump at Coal Power plant in Australia. Asset managed by a global company who wanted to restore the pump.

Solution

Surface was prepared and coated with PC 7255 – Sprayable Ceramic @ 500 micron thick.

Benefit	The coating was still intact in majority of places after 5 years which led to complete satisfaction to the Power Plant and the global company. Another 5 pumps were completed during last shutdown.

PUMP

Challenge

Erosion of internal pump surface because of mud and other abrasive in river water. Reduced life of the pump.

Solution

Clean the surface with LOCTITE® SF 7840™ followed by grit blast. Rebuilt with LOCTITE® PC 7222™ Wear Resistant Putty and Top coat with LOCTITE® PC 7227™ Brushable Ceramic.

Benefit	Increase the mean time between Failure of the pump, and replacement cost avoided.

SLURRY PUMP

Challenge

A leading Australian Copper and Gold Mine's pump liners and impellers of tailing pump faced severe erosion and needed replacement every 2000 hours. Customer wanted to use the liners for a longer duration to increase MTBF.

Solution

LOCTITE® PC 7383™ was used along with an Etching Agent to rebuild the worn out areas after surface preparation. Affected area lasted for another 1400 hrs. which was 66% enhancement in life of the liner. It was also touched up take it through another 600 hrs.

Benefit	This nearly doubled the life of the liner with little extra additional cost. Resulted in a great saving for the customer

SLURRY PUMP

Challenge

The Pulp Pump Volute was severely eroded and in some cases needs replacement in less than 90 days at a copper mine.

Solution

The affected area was rebuilt using LOCTITE® PC 7332™ Silicon Carbide Pneu Wear and LOCTITE® PC 7227™ Brushable Ceramic.

Benefit	The worn out pump was salvaged in less than 20% of the cost of the new one, saving the replacement cost and reducing downtime.

METAL REPAIR – SHAFT

SHAFT

Challenge

Metal shaft is worn out resulting in device failure and being no longer able to properly assemble the counterpart.

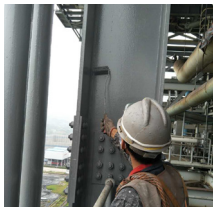
Solution

Rebuild shaft by using LOCTITE® EA 3478™ Superior Metal to recreate smooth surface and ensure needed fit between shaft and bearing.

Benefit	Shaft is restored to serviceable condition in only 4 hours.

EXTERNAL CORROSION

POWER PLANT EXTERNAL STRUCTURE



Challenge

External structure at Power Plant was suffering corrosion and normal paint was not lasting for more than 6 months.

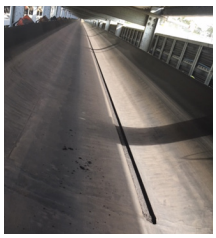
Solution

Surface was prepared by normal hand tools. LOCTITE® PC 7321™ was applied in 2 coats to protect against environment corrosion.

Benefit	Sturcture is protected from environmental corrosion. Extend life time to use, currently more than 3 years of application.

BELT REPAIR

CONVEYOR BELTS



Challenge

Damaged belt had a groove 75 meters long which had exposed the fabric plies, making them susceptible to water damage from wet coal and needed protection to prevent further damage.

Solution

Due to the belt length, a protective coating 3 to 5 mm thick was created along the entire repair to protect the exposed plies. LOCTITE® PC 7350™ conveyor belt repair kit was used along with Etching Agent and VR 10 Cleaner.

Benefit	On site training was provided by LOCTITE® and the belt was running for more than 4 months. Customer very satisfied with the performance as it saved down time and replacement cost.

FOUNDATION REPAIR

COLUMN FOOTING

Challenge

Storage tank and vessels concrete footing breaks up due to stress and corrosion. This requires in situ repairs that can withstand heavy loads and stresses. It needs to bond on rusted concrete and bars.

Solution

LOCTITE® PC 9410™ Magna Crete - 2K fast cure concrete repair product that has ability to bond on old concrete and steel. High compressive strength and chemical resistance for long term repair and recasting.

Benefit	Extended service life of up to 10 years and significant cost savings.

TECHNICAL REFERENCES

Product	Product description	Particle size	Colour	Mix ratio by volume (A:B)	Mix ratio by weight (A:B)	Working time	Surface drying time
LOCTITE® PC 7218™ WEARING COMPOUND	Ceramic bead filled epoxy compound	Large	Grey	2 : 1	2 : 1	30 mins	7 hrs
LOCTITE® PC 9313™ HIGH IMPACT WEARING COMPOUND	Ceramic bead filled epoxy compound	Large	Grey	2 : 1	2 : 1	30 mins	6 hrs
LOCTITE® PC 9593™ FAST CURE HIGH IMPACT WEARING COMPOUND	Ceramic and Silicon Carbide filled epoxy compound	Large	Blue	2 : 1	2 : 1	15 mins	4 hrs
LOCTITE® PC 7222™ WEAR RESISTANT PUTTY	Ceramic fiber filled epoxy compound	Fine	Grey	2 : 1	2 : 1	30 mins	6 hrs
LOCTITE® PC 7226™ PNEU WEAR	Ceramic bead filled epoxy compound	Fine	Grey	4 : 1	4 : 1	30 mins	6 hrs
LOCTITE® PC 7332™ SILICON-CARBIDE PNEU WEAR	Silicon Carbide filled epoxy compound	Fine	Grey	4 : 1	4 : 1	30 mins	6 hrs
LOCTITE® PC 7227™ BRUSHABLE CERAMIC	Ceramic filled epoxy compound	Fine	Grey/White	2.75 : 1	4.8 : 1	30 mins	6 hrs
LOCTITE® PC 7228™ BRUSHABLE CERAMIC	Ceramic filled epoxy compound	Fine	Grey/White	2.75 : 1	4.8 : 1	30 mins	6 hrs
LOCTITE® PC 7335™ HIGH TEMP BRUSHABLE CERAMIC	Ceramic filled epoxy compound	Fine	Red	2.6 : 1	4.25 : 1	180 mins	7 hrs
LOCTITE® PC 7255™ SPRAYABLE CERAMIC	Ceramic filled epoxy compound	Fine	Grey/Green	2 : 1	2 : 1	40 mins	4 hrs
LOCTITE® PC 7321™ FLEXIBLE COATING	Polysulphide modified epoxy compound	Fine	Grey / White / Light grey	1 : 1	1 : 1	60 mins	12 hrs
LOCTITE® PC 7319™ CHEMICAL RESISTANT COATING	100% Epoxy	N/A	Grey	2.3 : 1	3.4 : 1	20 mins	4 hrs
LOCTITE® PC 7383™ HIGH IMPACT HIGH ABRASION RUBBER REPAIR	100% solid polyurethane compound	N/A	Black	2.1 : 1	2.5 : 1	50 mins	24 hrs
LOCTITE® PC 9410™ MAGNA CRETE	Magnesium phospate based concrete repair system	N/A	Grey	4.6 : 1 TO 9.8 FILLER	-	7 mins	30 mins
LOCTITE® EA 3478™ SUPERIOR METAL	Ferro-silicon filled, 100% solid epoxy	N/A	Grey	4 : 1	7.25 : 1	20 mins	4 hrs

Recommended layer thickness	Coverage	Hardness shore D	Compressive strength N/mm²	Shear strength N/mm²	Service temperature range	IDH	Pack Size
Min 6 mm	0.8 m2 @ 6 mm thickness	90	110.3	7.6	-30 to 120°C	2888813	10 kg
Min 6 mm	0.8 m2 @ 6 mm thickness	85	82.7	-	-30 to 120°C	1327836	11.35 kg
Min 6 mm	0.245 m2 @ 6mm thickness (3kg)	85	46	23	-30 to 120°C	2610627	3 kg
						2607608	10 kg
Min 1 mm	1026 cm2 @ 6mm thickness	89	80	10	-30 to 105°C	209827	1.35 kg
Min 6 mm	0.8 m2 @ 6 mm thickness	85	103.4	5.5	-30 to 120°C	2725119	10 kg
Min 6 mm	0.8 m2 @ 6 mm thickness	85	96.9	11.3	-30 to 120°C	2565509	10 kg
Min 0.5 mm	1.1 m2 @ 0.5 mm thickness (1kg)	85	86.2	22.2	-30 to 95°C	978759	1 kg
						978758	2 kg
Min 0.5 mm	1.1 m2 @ 0.5 mm thickness (1kg)	85	86.2	22.2	-30 to 95°C	1050263	1 kg
Min 0.5 mm	1.1 m2 @ 0.5 mm thickness (1kg)	88	102	16.7	-30 to 288°C	978760	1 kg
Min 0.5 mm	2.2 m2 @ 0.5 mm thickness	86	106	31	-30 to 95°C	2490598	1.125 ml (grey)
						2494032	1.125 ml (green)
Min 0.25 mm	40 m2 @ 0.5 mm thickness	56	-	12.5	5 to 70°C	2809748 2809749 2833725 (Part A)	20 L
						2833726 (Part B)	
Min 0.5 mm	6.8 m2 @ 0.5 mm thickness	85	68	18.2	-30 to 120°C	209816	5 kg
6 mm	0.126 m2 @ 6 mm thickness	Shore A 90	-	6.43	-20 to 80°C	2719844	1 kg
Min 6 mm	52 m2 @ 6 mm thickness	88	-	-	-50 to 1100°C	235573	18.9 L
Min 1 mm	323 cm2 @ 6 mm thickness (454 g)	86	134	19.5	-30 to 120°C	680035	1 kg

FLUID COMPATIBILITY CHART

FOR METAL PARTS REPAIRED WITH LOCTITE® METAL REBUILDING PRODUCTS

LEGEND:

1 Compatible

2 Intermittent Exposure

3 Not Compatible

Acetimide 1
Acetic Acid, 10% 3
Acetic Acid, Glacial 3
Acetic Anhydride 1
Acetone 3
Acetyl Chloride 1
Acetylene, Liquid Phase 1
Acid Clay 1
Acrylic Acid 1
Acrylonitrile 1
Activated Alumina 1
Activated Carbon 1
Activated Silica 1
Alcohol, Allyl 2
Alcohol, Amyl 2
Alcohol, Benzyl 2
Alcohol, Butyl 2
Alcohol, Ethyl 2
Alcohol, Furfuryl 2
Alcohol, Hexyl 2
Alcohol, Isopropyl 1
Alcohol, Methyl 3
Alcohol, Propyl 1
Alum, Ammonium 1
Alum, Chrome 1
Alum, Potassium 1
Alum, Sodium 1
Alumina 1
Aluminum Acetate 1
Aluminum Bicarbonate 1
Aluminum Bifluoride 1
Aluminum Chloride 1
Aluminum Sulfate 1
Ammonia, Anhydrous 3
Ammonia Solutions, 20% 1
Ammonium Bisulfite, 20% 1
Ammonium Borate 1
Ammonium Bromide 1
Ammonium Carbonate 1
Ammonium Chloride 1
Ammonium Chromate 1
Ammonium Fluoride 1
Ammonium Fluorosilicate 1
Ammonium Formate 1
Ammonium Hydroxide, 20% 1
Ammonium Hyposulfite 1
Ammonium Iodide 1
Ammonium Molybdate 1
Ammonium Nitrate 1
Ammonium Oxalate 1
Ammonium Persulfate 1
Ammonium Phosphate 1
Ammonium Picrate 1
Ammonium Sulfate, 10% 1
Ammonium Sulfate Scrubber 1
Ammonium Sulfide 1
Ammonium Thiocyanate 1
Amyl Acetate 2
Amyl Amine 1
Amyl Chloride 1
Aniline 2
Aniline Dyes 1
Anodizing Bath 2
Antichlor Solution 1
Antimony Acid Salts 1
Antimony Oxide 1
Antioxidant Gasoline 1
Aqua Regia, 20% 1
Argon 1
Armeen 1
Arochlor 1
Aromatic Gasoline 1
Aromatic Solvents 2
Arsenic Acid 1
Asbestos Slurry 1
Ash Slurry 1
Asphalt Emulsions 1
Asphalt, Molten 1

Bagasse Fibers 1
Barium Acetate 1
Barium Carbonate 1
Barium Chloride 1
Barium Hydroxide 1
Barium Sulfate 1
Battery Acid 1
Battery Diffuser Juice 1
Bauxite (See *Alumina*) 1
Bentonite 1
Benzaldehyde 1
Benzene 2
Benzene Hexachloride 1
Benzene in Hydrochloric Acid, 20% . 1
Benzoic Acid 1
Benzotriazole 1
Beryllium Sulfate 1
Bicarbonate Liquor 1
Bilge Lines 1
Bleach Liquor 1
Bleached Pulps 3
Borax Liquors 3
Boric Acid 1
Brake Fluids 1
Brine, Chlorinated 1
Brine, Cold 1
Bromine Solution 3
Butadiene 1
Butyl Acetate 2
Butyl Alcohol 2
Butyl Amine 2
Butyl *Cellosolve* 2
Butyl Chloride 1
Butyl Ether, Dry 1
Butyl Lactate 1
Butyral Resin 1
Butyraldehyde 1
Butyric Acid 1

Cadmium Chloride 1
Cadmium Plating Bath 1
Cadmium Sulfate 1
Calcium Acetate 1
Calcium Bisulfate 1
Calcium Carbonate 1
Calcium Chlorate 1
Calcium Chloride 1
Calcium Chloride Brine 1
Calcium Citrate 1
Calcium Ferrocyanide 1
Calcium Formate 1
Calcium Hydroxide 1
Calcium Lactate 1
Calcium Nitrate 1
Calcium Phosphate 1
Calcium Silicate 1
Calcium Sulfamate 1
Calcium Sulfate 1
Calcium Sulfite 1
Camphor 1
Carbitol 1
Carbolic Acid, Phenol 1
Carbon Bisulfide 1
Carbon Black 1
Carbon Tetrachloride 1
Carbonic Acid 1
Carbowax 1
Carboxymethyl Cellulose 1
Carnauba Wax 1
Casein 1
Casein, Water Paint 1
Celite 1
Cellosolve 2
Cellulose Pulp 1
Cellulose Xanthate 1
Cement, Dry/Air Blown 1
Cement Grout 1
Cement Slurry 1
Ceramic Enamel 1
Ceric Oxide 1
Chalk 1
Chemical Pulp 1
Chestnut Tanning 1
China Clay 1
Chloral Alcoholate 1
Chloramine 1
Chlorinated Hydrocarbons 2
Chlorinated Paperstock 1
Chlorinated Solvents 2
Chlorinated Sulphuric Acids 2
Chlorinated Wax 1
Chlorine Dioxide 1
Chlorine, Liquid 1
Chlorine, Dry 1
Chloroacetic Acid 2
Chlorobenzene, Dry 1
Chloroform, Dry 1
Chloroformate Methyl 1
Chlorosulfonic Acid 1
Chrome Acid Cleaning, 20% 1
Chrome Liquor, 20% 1
Chrome Plating Bath, 20% 1
Chromic Acid, 10% 2
Chromic Acid, 50% Cold 3
Chromic Acid, 50% Hot 3
Chromium Acetate 1
Chromium Chloride 1
Chromium Sulfate 1
Classifier 1
Clay 1
Coal Slurry 1
Coal Tar 1
Cobalt Chloride 1
Copper Ammonium Formate 1
Copper Chloride 1
Copper Cyanide 1
Copper Liquor 1
Copper Naphthenate 1
Copper Plating, Acid Process 1
Copper Plating, Alk. Process 1
Copper Sulfate 1
Core Oil 1
Corundum 1
Creosote 1
Creosote, Cresylic Acid 1
Cyanide Solution 1
Cyanuric Chloride 1
Cyclohexane 1
Cylinder Oils 1

De-Ionized Water 1
De-Ionized Water, Low Conductivity 1
Detergents 1
Developer, Photographic 1
Dextrin 1
Diacetone Alcohol 3
Diammonium Phosphate 1
Diamylamine 1
Diatomaceaus Earth Slurry 1
Diazo Acetate 1
Dibutyl Phthalate 1
Dichlorophenol 1
Dichloro Ethyl Ether 1
Dicyandamide 1
Dielectric Fluid 1
Diester Lubricants 1
Diethyl Ether, Dry 1
Diethyl Sulfate 1
Diethylamine 1
Diethylene Glycol 1
Diglycolic Acid 1
Dimethyl Formamide 1
Dimethyl Sulfoxide 1
Dioxane, Dry 1
Dioxidene 1
Dipentene, Pinene 1
Diphenyl 1
Distilled Water, Industrial 1
Dowtherm 1
Drying Oil 1
Dust, Flue (Dry) 1
Dye Liquors 1

Emery Slurry 1
Emulsified Oils 1
Enamel Frit Slip 1
Esters General 1
Ethyl Acetate 2
Ethyl Alcohol 2
Ethyl Amine 1
Ethyl Bromide 1
Ethyl *Cellosolve* 2
Ethyl *Cellosolve* Slurry 2
Ethyl Formate 1
Ethyl Silicate 1
Ethylene Diamine 1
Ethylene Dibromide 1
Ethylene Dichloride 1
Ethylene Glycol 1
Ethylenediamine Tetramine 1

Fatty Acids 1
Fatty Acids, Amine 1
Fatty Alcohol 1
Ferric Floc 1
Ferric Chloride 1
Ferric Nitrate 1
Ferric Sulfate 1
Ferrocence, Oil Sol 1
Ferrous Chloride 1
Ferrous Oxalate 1
Ferrous Sulfate, 10% 1
Ferrous Sulfate, Sat 1
Fertilizer Sol 1
Flotation Concentrates 1
Fluoride Salts 1
Fluorine, Gaseous or Liquid 1
Fluorolube 1
Fluosilic Acid 1
Flux, Soldering 1
Fly Ash, Dry 1
Foam Latex Mix 1
Foamite 1
Formaldehyde, Cold 2
Formaldehyde, Hot 3
Formic Acid, Dil. Cold 2
Formic Acid, Dil. Hot 3
Formic Acid, Cold 2
Formic Acid, Hot 3
Freon 1
Fuel Oil 1
Fuming Nitric, Red, 20% 1
Fuming Sulfuric, 20% 1
Fuming Oleum 2
Furfural 1

Gallic Acid 1
Gallium Sulfate 1
Gasoline, Acid Wash 1
Gasoline, Alk. Wash 1
Gasoline, Aviation 1
Gasoline, Copper Chloride 1
Gasoline, Ethyl 1
Gasoline, Motor 1
Gasoline, Sour 1
Gasoline, White 1
Gluconic Acid 1
Glue, Animal Gelatin 1
Glue, Plywood 1
Glutamic Acid 1
Glycerine Lye, Brine 1
Glycerol 1
Glycine 1
Glycine Hydrochloride 1
Glycol Amine 1
Glycolic Acid 1
Glyoxal 1
Gold Chloride 1
Gold Cyanide 1
Granodine® 1
Grape Pomace Graphite 1
Grease, Lubricating 1
Green Soap 1
Grinding Lubricant 1
Grit, Steel 1
Gritty Water 1
Groundwood Stock 1
GRS Latex 1
Gum Paste 1
Gum Turpentine 1
Gypsum 1

Halane Sol 1
Halogen, Tin Plating 1
Halowax 1
Harvel, Trans. Oil 1
Heptane 1
Hexachlorobenzene 2
Hexadiene 1
Hexamethylene Tetramine 1
Hexane 1
Hydrazine 1
Hydrazine Hydrate 1
Hydrobromic Acid 3
Hydrochloric Acid, 20% 1
Hydrocyanic Acid 1
Hydroflouric Acid 3
Hydrogen Peroxide, Dil 1
Hydrogen Peroxide, Con, 20% 1
Hydroponic Sol 1
Hydroquinone 1
Hydroxyacetic Acid 1
Hypo 1
Hypochlorous Acid 1
Ink 1
Ink in Solvent, Printing 2
Iodine in Alcohol 2
Iodine, Potassium Iodide 1
Iodine Solutions 1
Ion Exchange, Service 1
Ion Exclusion, Glycol 1
Irish Moss Slurry 1
Iron Ore, Taconite 1
Iron Oxide 1
Isobutyl Alcohol 1
Isobutyraldehyde 1
Isooctane 1
Isopropyl Alcohol 1
Isocyanate Resin 1
Isopropyl Acetate 2
Isopropyl Ether 2
Itaconic Acid 1

Jet Fuels 2
Jeweler's Rouge 1
Jig Table Slurry 1

Kaolin, China Clay 1
Kelp Slurry 1
Kerosene 1
Kerosene, Chlorinated 1
Ketone 3

Lacquer Thinner 1
Lactic Acid 1
Lapping Compound 1
Latex, Natural 1
Latex, Synthetic 1
Latex, Synthetic Raw 1
Laundry Wash Water 1
Laundry Bleach 3
Laundry Blue 1
Laundry Soda 1
Lead Arsenate 1
Lead Oxide 1
Lead Sulfate 1
Lignin Extract 1
Lime, Slaked 1
Lime Sulfur Mix 1
Liquid Ion Exchange 1
Lithium Chloride 1
LOX (Liquid O_2) 1
Ludox 1
Lye, 20% 1

Machine Coating, Colour 1
Magnesite Slurry 1
Magnesite 1
Magnesium Bisulfite 1
Magneslum Carbonate 1
Magnesium Chloride 1
Magnesium Hydroxide 1
Magnesium Sulfate 1
Maleic Acid 1
Maleic Anhydride 1
Manganese Chloride 1
Manganese Sulfate 1
Melamine Resin 1
Menthol 3
Mercaptans 1
Mercuric Chloride 1
Mercuric Nitrate 1
Mercury 1
Mercury, Dry 1
Methane 1
Methyl Alcohol 1
Methyl Acetate 1
Methyl Bromide 1
Methyl Carbitol 1
Methyl *Cellosolve* 1
Methyl Chloride 3
Methyl Ethyl Ketone 3
Methyl Isobutyl Ketone 3
Methyl Lactate 1
Methyl Orange 1
Methylamine 1
Methylene Chloride 3
Mineral Spirits 1
Mixed Acid, Nitric/Sulfuric, 20% 1
Monochloracetic Acid, 10% 1
Morpholine 1
Mud 1

Nalco Sol. 1
Naphtha 1
Naphthalene 1
Naval Stores Solvent 1
Nematocide 1
Neoprene Emulsion 1
Neoprene, Latex 1
Nickel Acetate 1
Nickel Ammonium Sulfate 1
Nickel Chloride 1
Nickel Cyanide 1
Nickel Fluoborate 1
Nickel Ore Fines 1
Nickel Plating Bright 1
Nickel Sulfate 1
Nicotinic Acid 1
Nitrate Sol. 1
Nitration Acid(s) 1
Nitric Acid, 10% 2
Nitric Acid, 20% 3
Nitric Acid, Anhydrous 2
Nitric Acid, Fuming 3
Nitro Aryl Sulfonic Acid 2
Nitrobenezene, Dry 2
Nitrocellulose 1
Nitrofurane 1
Nitroguanidine 1
Nitroparaffins, Dry 1
Nitrosyl Chloride 1
Norite Carbon 1
Nuchar 1

Oakite Compound 1
Oil, Creosote 1
Oil, Emulsified 1
Oil, Fuel 1
Oil, Lubricating 1
Oil, Soluble 1
Oleic Acid, Hot 1
Oleic Acid, Cold 1
Ore Fines, Flotation 1
Ore Pulp 1
Organic Dyes 1
Oxalic Acid, Cold 1
Ozone, Wet 1

Paint, Linseed Base 1
Paint, Water Base 1
Paint Remover, Sol. Type 1
Paint, Vehicle 1
Palmitic Acid 1
Paper Board, Mill Waste 1
Paper Coating Slurry 1
Paper Pulp 1
Paper Pulp with Amun. 1
Paper Pulp with Dye 1
Paper Pulp, Bleached 3
Paper Pulp, Bleached, washed 3
Paper Pulp, Chlorinated 2
Paper Groundwood 1
Paper Rag 1
Paper Stocks, Fine 1
Paradichlorobenezene 2
Paraffin, Molten 1
Paraffin Oil 1
Paraformaldehyde 1
Pectin Solution Acid 1
Pentachlorethane 2
Pentaerythritol Sol. 1
Perchlorethylene, Dry 2
Perchloric Acid, 10% 3
Perchloromethyl Mercaptan 1

LEGEND:

1 Compatible

2 Intermittent Exposure

3 Not Compatible

Permanganic Acid 2
Persulfuric Acid, 10% 3
Petroleum Ether, 10% 3
Petroleum Jelly 1
Phenol Formaldehyde Resins 1
Phenol Sulfonic Acid 1
Phenolic Glue 1
Phloroglucinol 1
Phosphate Ester 1
Phosphatic Sand 1
Phosphoric Acid, 85% Hot 3
Phosphoric Acid, 85% Cold 3
Phosphoric Acid, 50% Hot 3
Phosphoric Acid, 50% Cold 3
Phosphoric Acid, 10% Cold 1
Phosphoric Acid, 10% Hot 3
Phosphorous, Molten 1
Phosphotungstic Acid, 20% 1
Photographic Sol. 1
Phthalic Acid 1
Phytate 1
Phytate Salts 1
Pickling Acid, Sulfuric 3
Picric Acid Solutions 1
Pine Oil Finish 1
Plating Sol. as follows:
Brass Cyanide 1
Bronze, Cyanide 1
Chromium and Cadmium 1
Cyanide 1
Cobalt Acid, 20% 1
Copper Acid, 20% 1
Copper Alk., 20% 1
Gold Cyanide 1
Iron Acid, 20% 1
Lead, Fluoro 1
Nickel, Bright 1
Platinum 1
Silver Cyanide 1
Tin Acid, 20% 1
Tin Alk. Barrel, 20% 1
Zinc Acid, 20% 1
Zinc Alk. Cyanide 1
Polyacrylonitrile Slurry 1
Polypentek 1
Polysulfide Liquor 1
Polyvinyl Acetate Slurry 1
Polyvinyl Chloride 1
Porcelain Frit 1
Potash 1
Potassium Acetate 1
Potassium Alum. Sulfate 1
Potassium Bromide 1
Potassium Carbonate 1
Potassium Chlorate 1
Potassium Chloride Sol. 1
Potassium Chromate 1
Potassium Cyanide Sol. 1
Potassium Dichromate 1
Potassium Ferricyanide 1
Potassium Hydroxide, 40% 1
Potassium Iodide 1
Potassium Nitrate 1
Potassium Perchlorate 1
Potassium Permanganate 1
Potassium Persulfate 1
Potassium Phosphate 1
Potassium Silicate 1
Potassium Sulfate 1
Potassium Xanthate 1
Press Board Waste 1
Propionic Acid 1
Propyl Alcohol 1
Propyl Bromide 1
Propylene Glycol 1
Pumice 1
Pyranol 1
Pyridine 1
Pyrogallic Acid 1
Pyrogen, Free Water 1
Pyrole 1
Pyromellitic Acid 1

Quebracho Tannin 1

Rag Stock, Bleached 2
Rare Earth Salts 1
Rayon Acid Water 1
Rayon Spin Bath 1
Rayon Spin Bath, Spent 1
Resorcinol 1
River Water 1
Road Oil 1
Roccal 1
Rosin, Wood 1
Rosin in Alcohol 1
Rosin Size 1
Rubber Latex 1

Safrol 1
Salt, Alkaline 1
Salt, Electrolytic 1
Salt, Refrig. 1
Sand, Air Blown Slurry 1
Sand, Air Phosphatic 1
Sea Coal 1
Sea Water 1
Selenium Chloride 1
Sequestrene 1
Sewage 1
Shellac 1
Shower Water 1
Silica Gel 1
Silica, Ground 1
Silicone Tetrachloride 1
Silicone Fluids 1
Silver Cyanide 1
Silver Iodide, Aqu. 1
Silver Nitrate 1
Size Emulsion 1
Skelly Solve E, L 1
Slate to 400 Mesh 1
Soap, Lye 1
Soap Solutions, Stearates 1
Soap Stone, Air Blown 1
Soda Pulp 1
Sodium Acetate 1
Sodium Acid Fluoride, 20% 1
Sodium Aluminate 1
Sodium Arsenate 1
Sodium Benzene Sulfonate 1
Sodium Bichromate 1
Sodium Bisulfite 1
Sodium Bromide 1
Sodium Carbonate 1
Sodium Chlorate 1
Sodium Chlorite 1
Sodium Cyanide 1
Sodium Ferricyanide 1
Sodium Formate 1
Sodium Glutamate 1
Sodium Hydrogen Sulfate 1
Sodium Hydrosulfite 1
Sodium Hydrosulfide 1
Sodium Hydrochloride 2
Sodium Hydroxide, 20% 1
Sodium Hydro., 20% Cold 3
Sodium Hydro., 20% Hot 2
Sodium Hydro., 50% Cold 3
Sodium Hydro., 50% Hot 3
Sodium Hydro., 70% Cold 3
Sodium Hydro., 70% Hot 3
Sodium Hypochlorite 3
Sodium Lignosulfonate 1
Sodium Metasilicate 1
Sodium, Molten 1
Sodium Nitrate 1
Sodium Nitrite, Nitrate 1
Sodium Perborate 1
Sodium Peroxide 1
Sodium Persulfate 1
Sodium Phosphate, Mono 1
Sodium Phosphate, Tri 1
Sodium Potassium Chloride 1
Sodium Salicylate 1
Sodium Sesquicarbonate 1
Sodium Silicate 1
Sodium Silcofluoride 1
Sodium Stannate 1
Sodium Sulfate 1
Sodium Sulfide 1
Sodium Sulfite 1
Sodium Sulfhydrate 1
Sodium Thiocyanate 1
Sodium Thiosulfate 1
Sodium Tungstate 1
Sodium Xanthate 1
Solox, Denat. Ethanol 2
Soluble Oil 1
Solvent Naphthas 1
Sorbic Acid 1
Sour Gasoline 1
Soybean Sludge Acid 1
Spensol Solution 1
Stannic Chloride 1
Starch 1
Starch Base 1
Stearic Acid 1
Steep Water 1
Sterilization Steam 1
Stillage Distillers 1
Stoddard Solvent 1
Styrene 1
Styrene Butadiene, Latex 1
Sulfamic Acid, 20% 1
Sulfan, Sulfuric Anhydride 1
Sulfathiazole 1
Sulfite Liquor 1
Sulfite Stock 1
Sulfonated Oils 1
Sulfones 1
Sulfonic Acids 2
Sulfonyl Chloride 1
Sulfur Slurry 1
Sulfur Solution 1
in Carbon Disulfide 1
Sulphuric Acid, 0-7% 2
Sulphuric Acid, 7-40% 3
Sulphuric Acid, 40-75% 3
Sulphuric Acid, 75-95% 3
Sulphuric Acid, 95-100% 3
Sulphurous Acid 2
Sulfuryl Chloride 1
Surfactants 1
Synthetic Latex 1

Taconite, Fines 1
Talc Slurry 1
Tankage Slurry 1
Tannic Acid, Cold 1
Tamin 1
Tar and Tar Oil 1
Tartaric Acid 1
Television Chemicals 1
Tergitol 1
Terpineol 1
Tetraethyl Lead 1
Tetrahydrofuran 1
Tetranitromethane 1
Textile Dyeing 1
Textile Finishing Oil 1
Textile Printing Oil 1
Thiocyanic Acid 1
Thioglycollic Acid 1
Thionyl Chloride 1
Thiophosphoryl Chloride 1
Thiourea 1
Thorium Nitrate 1
Thymol 1
Tin Tetrachlorida 1
Tinning Sol., DuPont 1
Titania Paper Coating 1
Titanium Oxide Slurry 1
Titanium Oxy Sulfate 1
Titanium Sulfate 1
Titanium Tetrachloride 1
Toluol 3
Toluene 3
p-Toluene Sulfonic Acid 2
Transil Oil 1
Trichloracetic Acid, 10% 1
Trichlorethane, 1,1,1 2
Trichlorethylene 2
Trichlorethylene, Dry 2
Tricresyl Phosphate 1
Triethanolamine 1
Triethylene Glycol 1
Trioxane 1
Tungstic Acid 1
Turpentine 1

UCON Lube 1
Udylite Bath, Nickel 1
Undecylenic Acid 1
Unichrome Sol., Alk. 1
Uranium Salts 1
Uranyl Nitrate 1
Uranyl Sulfate 1
Urea Ammonia Liquor, 20% 1

Vacuum Oil 1
Vanadium Pentoxide 1
Slurry 1
Varnish 1
Varsol, Naphtha Solv. 1
Versene 1
Vinyl Acetate, Dry or
Chloride Monomer 1
Vinyl Chloride, Latex Emul 1
Vinyl Resin Slurry 1
Viscose 1
Vortex, Hydroclone 1

Water, Acid Below pH 7 2
Water, pH 7 to 8 1
Water, Alkaline Over pH 8, 20% ... 1
Water, Mine Water 1
Water, Potable 1
Water, River 1
Water, Sandy 1
Water, "White" low pH, 20% 1
Water, "White" high pH, 20% 1
Wax 1
Wax, Chlorinated 1
Wax Emulsions 1
Weed Killer, Dibromide 1
Weisberg Sulfate Plating 1
Wood, Ground Pulp 1
Wort Lines 1

X-Ray Developing Bath 1
Xylene 3

Zelan 1
Zeolite Water 1
Zinc Acetate 1
Zinc Bromide 1
Zinc Chloride 1
Zinc Cyanide, Alk. 1
Zinc Fines Slurry 1
Zinc Flux Paste 1
Zinc Galvanizing 1
Zinc Hydrosulfite 1
Zinc Oxide in Water 1
Zinc Oxide in Oil 1
Zinc Sulfate 1
Zincolate 1
Zirconyl Nitrate 1
Zirconyl Sulfate 1

Gases

Acetylene 1
Acid and Alkali Vapors 2
Air 1
Amine 1
Ammonia 1

Butane 1
Butadiene, Gas/Liquid 1
Butylene, Gas/Liquid 1
By-Product Gas, Dry 1

Carbon Dioxide 1
Carbon Disulfide 1
Carbon Monoxide 1
Chloride, Dry 1
Chlorine, Dry 1
Chlorine, Wet 2
Coke Oven Gas, Cold 1
Coke Oven Gas, Hot 3
Cyanogen Chloride 1
Cyanogen Gas 1

Ethane 1
Ether, see Diethyl Ether 1
Ethylene 1
Ethylene Oxide 1

Freon (11-12-21-22) 3
Furnace Gas, Cold 1
Furnace Gas, Hot 3

Gas, Drip Oil 1
Gas, Flue 3
Gas, Natural 1

Helium 1
Hydrogen Gas, Cold 1
Hydrogen Chloride 1
Hydrogen Cyanide 1
Hydrogen Sulfide, Wet and Dry 1

Isobutane 1
Methane 1
Methyl Chloride 3
Natural Gas, Dry 1
Nitrogen Gas 1
Nitrous Oxide 1

Oil, Solvent Vapor 1
Oxygen 3
Ozone 3

Propane 1
Propylene 1

Steam, High Pressure (> 70 psi).. 1
Steam, Low Pressure (< 70 psi) .. 1
Sulfur Dioxide 1
Sulfur Dioxide, Dry 1
Sulfur Trioxide Gas 1
Sulfuric Acid Vapor, 20% 1

NOTE:

1. The above information does not constitute a recommendation of product use. It is intended only as a guide for consideration by the purchaser with the expectation of favorable confirming test results. It is impossible to test product reaction with the multitude of chemicals in existence, therefore, compatibility has been estimated based on a wide variety of customer experience.
2. With the stringent action of such chemicals as *Freon®*, strong cold acids and caustics, thorough evaluation is suggested.
3. Contact Henkel Corporation for use with chemicals not covered by this information.

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