

When things go wrong, reach for Devcon

Introduction

Devcon® is a world leader in adhesive technology and products for industrial OEM assembly and maintenance, repair (MRO) applications.

More than 60 years ago, Devcon® introduced an alternative to welding and brazing with Plastic Steel®, a tough, steel-filled epoxy putty. Today, Devcon® offers one of the most extensive lines of highly effective OEM adhesive and maintenance and repair products available.

Maintenance, Repair, and Operations (MRO). Whether you need to rebuild equipment to original specifications or prevent failures from occurring in a preventative maintenance program, Devcon® has the solution.

When things go wrong, reach for Devcon®

Look to Devcon® products for metal repair, abrasion resistance and rubber repair applications.








Devcon® MRO products include:

- Metal repair epoxies designed to extend the life of critical process equipment.
- Flexane® urethanes for rubber repair and casting, low-volume or replacement parts.
- Protective coatings that reduce damage from wear and abrasion.
- Adhesives for high strength, fast curing applications for plastics and metals.
- Metal treatment products designed to protect or lubricate metal surfaces in industrial environments.
- Emergency repair products that allow you to repair equipment and return it to service in minutes.

All these products can be easily applied by plant maintenance personnel with minimal training.

WARRANTY

All recommendations, technical information and test data contained in this product guide are based upon the results of controlled laboratory tests or of actual field test by independent companies. The company has made every effort to ensure that the data contained within this product guide is as up to date as possible. However, the company accepts no claim for any incorrect data contained within this product guide.

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Metal Repair Epoxies



Versatile, durable compounds that do not require any special tools, heat or pressure for maintenance, repair and tooling applications. Available in putty and liquid forms, DEVCON METAL REPAIR EPOXIES are two component systems that harden by mixing the curing agent with the resin. Cured epoxies can be drilled, tapped, machined or painted. Choice of metal filling, application and performance characteristics allow the user to specify the best epoxy for the job.

(For further technical information refer to Technical Data section).

PLASTIC STEEL PUTTY (A)

A steel filled epoxy for maintenance, repairs, tooling and production applications. Plastic Steel Putty requires no special tools, heat or pressure, and once set can be drilled, tapped, machined and painted. Because it hardens in about 4 hours and will not shrink, it is ideal for repairing pipes, valves and tanks, building up worn equipment, tooling and holding fixtures. Bonds to just about anything - including iron, steel, aluminium, brass, wood, glass, ceramics and concrete.

PLASTIC STEEL LIQUID (B)

A low viscosity compound with all the properties of Plastic Steel Putty, but in a liquid form for accurate detail reproduction. Used to cast low cost patterns, moulds, holding fixtures, tools and dies.

PLASTIC STEEL 5-MINUTE PUTTY (SF)

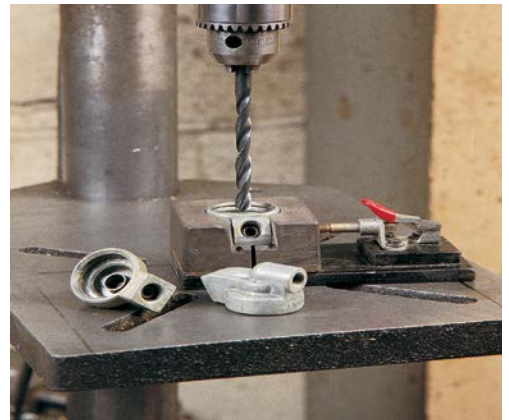
This super fast curing putty retains all the properties of Plastic Steel and is ideal for low temperature applications. A pot life of 5 minutes at 24°C makes it perfect for fast repairs to pipes, tanks and other essential equipment, putting them back into service in about 1 hour.

FASMETAL™ 10 (HVAC)

Aluminium filled, high strength bonding, patching and sealing paste that bonds to Aluminium and other metals, ceramics, wood, concrete or glass. Fasmetal 10 is ideally suited for air conditioning repairs.



Plastic Steel, the first fortified epoxy repair compound is still one of the most effective for a wide range of general metal repair and rebuilding applications.



Plastic Steel Liquid offers a fast and economical way of making holding fixtures.



Fasmetal 10 for quick, permanent emergency repairs to pipes, chutes, tanks and bearing housing.

ALUMINIUM PUTTY (F)

This light weight Aluminium filled epoxy has all the characteristics of an Aluminium finish. This non-sagging, non-rusting epoxy is ideal for repairing Aluminium parts, filling Aluminium castings and forming light weight prototypes.

STAINLESS STEEL PUTTY (ST)

Use wherever hygiene and corrosion resistance is important. Repair all types of machinery and equipment in non-rusting Stainless Steel in meat packing plants, dairies, chemical and food plants.

TITANIUM PUTTY

The technically advanced epoxy formulation of Titanium Putty makes this product the high performer of metal filled epoxies. A service temperature of 175°C, superior compressive strength, resistance to wear and a wide range of chemicals makes Titanium Putty the ideal epoxy to rebuild shafts, keyways, bearing housings and other high performance applications.

WET SURFACE REPAIR PUTTY (UW)

Used to repair pipes, tanks, valves and pumps in water treatment plants and paper mills whenever it is not possible to get parts and equipment completely dry. This outstanding epoxy will cure and bond in wet conditions and even under water at temperatures as low as 4°C. It is non-shrinking and non-rusting with exceptional tensile and compressive strength making it ideal for the marine industry.

Ordering Information

Product Stock Number	Pack Size
Plastic Steel Putty (A)	
D10110	500g
D10120	1.5kg
Plastic Steel Liquid (B)	
D10210	500g
Plastic Steel 5-min Putty (SF)	
D10250	250g
D10240	500g
Fastmetal 10 (HVAC)	
D19770	184g
Aluminum Putty (F)	
D10610	500g
Stainless Steel Putty (ST)	
D10270	450g
Titanium Putty	
D10760	450g
Wet Surface Repair Putty (UW)	
D11800	500g

PRODUCTION APPLICATION SELECTOR GUIDE FOR METAL REPAIR PRODUCTS

Application	Product	Mix Ratio Wt/vol	Pot Life (mins)	Functional Cure Strength (hrs)	Coverage (cm ² /kg@5mm)	Operating Temp (°C)	Colour
Metal Rebuilding	Plastic Steel Putty (A)	9:1 / 2.5:1	45	16	860	120	Dark Grey
Heavy Duty Repair	Titanium Putty	4.3:1 / 3:1	20	16	848	175	Grey
Levelling & Fixturing	Plastic Steel Liquid (B)	9:1 / 3:1	45	16	946	120	Dark Grey
Low-Temp Patching	Plastic Steel 5-min Putty (SF)	1.7:1 / 1:1	5	1	1084	93	Dark Grey
Food Grade Repair	Stainless Steel Putty (ST)	11:1 / 3.7:1	45	16	896	120	Grey
HVAC Repair	Fasmetal 10 (HVAC)	1:1 / 1:1	60	24	1264	120	Aluminium
Casting Repair	Aluminium Putty (F)	9:1 / 4:1	60	16	1264	120	Aluminium
Wet Surface Repairs	Wet Surface Repair Putty (UW)	1.4:1 / 1:1	45	16	1250	93	Grey

Abrasion Resistant Systems



This group of technically advanced epoxy systems was developed to meet industry requirements for repair materials to be used in extremely aggressive operating environments. DEVCON ABRASION RESISTANT EPOXIES offer a range of abrasion, corrosion and chemical resistance that allows the user to repair, protect and rebuild equipment in the most severe conditions.

(For further technical information refer to Technical Data section).

WEAR RESISTANT PUTTY (WR-2)

A highly wear resistant self lubricating compound for use on surfaces subject to sliding or fluid wear. This non-shrinking epoxy can be used for building up and prolonging the life of shafts, pumps, valves, machine beds and for making general repairs. It is a fine ceramic filled epoxy that cures to a smooth low friction finish.

CARBIDE PUTTY

An extremely tough epoxy compound filled with silicon carbide granules up to 2mm in diameter. This product is capable of withstanding impact and abrasion from slurry to pulverised mineral particles of 2mm. Excellent chemical and temperature resistance up to 120°C allows Carbide Putty to stand up to constant wear in pipes, elbows, coal pulverisers, slurry pumps, and exhauster fans.

CERAMIC REPAIR PUTTY

This non-sag, trowelable ceramic filled epoxy compound has been tested and proven in use to be a truly high performance product. It has outstanding wear resistance, excellent chemical and corrosion resistance and can withstand temperatures up to 175°C. Used to repair and protect processing equipment such as slurry, service water, centrifugal and ash pumps in power plants, pulp and paper mills, chemical and water treatment plants.

BRUSHABLE CERAMIC

This product has all the properties of Ceramic Repair Putty in a liquid form. Brushable Ceramic is a low viscosity, alumina filled, brushable epoxy that provides a smooth, protective barrier against wear, abrasion, corrosion, erosion and chemical attack. Use Brushable Ceramic to protect pump casings and flange faces and to rebuild and seal heat exchanger tube sheets, impeller blades, valves, water boxes, fan blades, chutes and hoppers. Brushable Ceramic is available in two colours (red, blue).

Meets AS4020 for use in contact with potable water.

SPRAYABLE CERAMIC

Sprayable Ceramic is a ceramic-reinforced composite that can be sprayed in a manner similar to high-solids paints. It is ideal for protecting pumps, pump pads, paper machines, stacks, steel frames and tanks. Sprayable Ceramic exhibits excellent chemical resistance and is available in a blue and grey colour. Sprayable Ceramic uses standard airless equipment and is capable of being sprayed on in a thickness of between 400 and 600µm in one pass.



Ceramic Repair Putty protects equipment surfaces from damage due to wear and abrasion, extending service life and often eliminating the cost of replacement.



Wear Guard Fine Load offers an economical way to protect equipment surfaces from abrasion damage caused by particulate less than 3mm.



Brushable Ceramic provides pumps and other equipment with a smooth protective barrier against wear, abrasion, corrosion, erosion and chemical attack and it fills holes and voids in castings.

WEAR GUARD™ FINE LOAD

A high performance wear-resistant epoxy compound containing high-alumina ceramic beads for wear and abrasion protection of equipment conveying fine particles. Can withstand operating temperatures up to 150°C and exhibits an outstanding resistance to a wide range of chemicals. Wear Guard Fine Load can be trowelled to form a smooth surface and can be applied to vertical or overhead surfaces.

WEAR GUARD™ HIGH IMPACT

An extremely wear resistant, ceramic-beaded epoxy system containing urethane acrylate for superior impact abrasion. High Impact is a non-sagging putty used for protecting against impact and flex. It also provides high compressive and impact strength once cured. The product will handle temperatures up to 150°C and is intended for high impact applications in pumps, scrubbers, screens, chutes, handling equipment and screw conveyors.

COMBO WEAR FC (FAST CURE)

Combo Wear FC is a high performance wearing compound that combines the abrasion resistance of high alumina ceramic beads with silicon carbide. This non-sag putty has excellent adhesion to metal, ceramic and concrete and will bond to a damp surface. Used to protect pipe elbows, housings, exhausters fans, repairs to coal fuel lines, bins and hoppers. Puts critical equipment back in service in 1-1.5 hours at 24°C.



Ordering Information

Product Stock Number	Pack Size
Wear Resistant Putty (WR-2)	
D11410	500g
Carbide Putty	
D10050	1.5kg
Ceramic Repair Putty	
D11705	500g
D11700	1.5kg
Brushable Ceramic	
D11760 Red	1kg
D11765 Blue	1kg
Sprayable Ceramic	
DDE108 Blue	3.8L
Wear Guard Fine Load	
D11405	4kg
D11400	10kg
Combo Wear FC (Fast Cure)	
D11450	4kg
Wear Guard High Impact	
D11464	4kg
D11460	10kg

PRODUCTION APPLICATION SELECTOR GUIDE FOR ABRASION RESISTANT PRODUCTS

Application*	Product	Mix Ratio Wt/vol	Pot Life (mins)	Functional Cure Strength (hrs)	Coverage (cm ² /kg @ 0.4mm)	Operating Temp (°C)	Colour
Sliding or Fluid Wear	Wear Resistant Putty (WR-2)	9:1 / 4:1	60	16	1142	120	Dark Grey
Chemical Resistant Coating	Brushable Ceramic	5.5:1 / 3.4:1	40	24	1.55m ² /kg @ 0.4mm	176	Red, Blue
	Sprayable Ceramic	*14:2.5:1 / 7.1:2.1:1	40	24	10m ² /3.8L @ 0.4mm	176	Blue, Grey
Metal Rebuilding	Ceramic Repair Putty	7:1 / 4.3:1	25	16	1292	175	Dark Blue
Agg. Less than 2mm dia.	Carbide Putty	8:1 / 4:1	50	16	1148	120	Dark Grey
Metal Rebuilding	Dfense Blok Wearing Compound	100:45/ 2:1	25	4-5	706	150	Grey
Agg. Less than 3mm dia.	Wear Guard Fine Load	2:1 / 2:1	45	16	894	149	Grey
Agg. Greater than 3mm dia.	Wear Guard High Impact	2.5:1 / 2.5:1	45	16	896	150	Dark Grey
Fast Curing	Combo Wear FC	2:1 / 2:1	7-12	1.5	894	149	Grey

*Mix ratio of Resin:Hardener:Thinner

Revolutionising Wear & Abrasion Protection

DFENSE BLOK™



DFense Blok™ Wearing Compound

- Superior sliding abrasion resistance
- Withstands high impact conditions
- Non-sagging on vertical or overhead surfaces

DFense Blok™ Fast Cure (FC)

- Faster curing version of DFense Blok™
- Allows equipment to be returned to service in 2 hours
- Less prone to unexpected fractures

DFense Blok™ Surface Wetting Agent (SWA)

- Zero wait time before applying DFense Blok™
- Allows superior adhesion to vertical and overhead surfaces
- Orange color for easy visual inspection

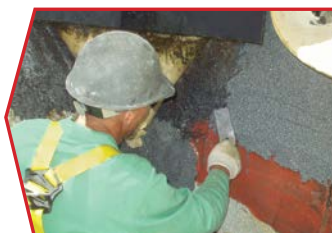
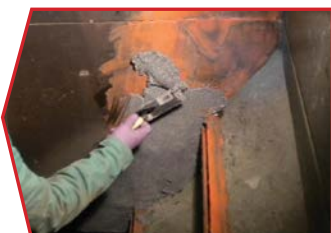
DFense Blok™ Quick Patch

- The only ceramic bead-filled wear and abrasion resistant epoxy for emergency repair
- Eliminates downtime with exceptionally fast cure

DFense Blok™ is a new, innovative line of specially formulated wear and abrasion products designed to outperform and outlast traditional wear and abrasion epoxies, while also providing superior performance in the most severe conditions.

Ordering Information

Product	Pack Size
DFense Blok™ Wearing Compound	
D11330	13.6 kg
DFense Blok™ Surface Wetting Agent	
D11340	454 gm
DFense Blok™ Fast Cure (FC)	
D11350	4 kg
DFense Blok™ Quick Patch	
D11320	454 gm



High Strength Adhesives

DEVCON HIGH STRENGTH ADHESIVES are strong, dependable and easy to use. DEVCON Epoxy Adhesives belong in every maintenance tool box. Industrial strength products, yet simple enough for anyone.

(For further technical information refer to Technical Data section.)

5 MINUTE FAST DRYING EPOXY

A rapid curing, general purpose adhesive/encapsulant. Bonds rigid, durable substrates such as metals, glass, ceramics, concrete and wood in all combinations. Forms a clear, hard, rigid bond or coating (10MPa, 1500 psi) in minutes.

PLASTIC STEEL “STEEL FILLED” EPOXY

A high strength bond (17MPa, 2500 psi) resistant to most chemicals and water proof. Works best on metals, steel, aluminium, copper, iron, pewter and more. Excellent for filling under speedy sleeves or where heat transfer is critical.

PLASTIC WELDER™

A toughened structural adhesive formulated for bonding dissimilar substrates. Highly resistant to hydrocarbon fuels (gasoline, jet fuel, motor oil, hydraulic oil). Bonds PVC, fibreglass, ABS, steel, acrylics, polycarbonate, polyesters (PET; PBT), wood and ceramics. The final adhesive bond is designed to be load bearing and resistant to weathering, humidity and a wide variation in temperature.



Devcon's Dev-tube adhesive dispenser features a safer, easier-to-use design. Its unique snap-open safety cap eliminates the need for a knife or razor to open it, while preserving unused adhesive for the next job. Other features include a convenient, snap-out mixing paddle moulded into the plunger handle.

Ordering Information

Product	Pack Size
5 Minute Fast Drying Epoxy	
DS-208 Dev Tube	28.4g
Plastic Steel “Steel Filled” Epoxy	
DS-5 2 Tubes	56.8g
Plastic Welder	
DS-220 Dev Tube	25ml

Metal Treatment Products

DEVCON METAL TREATMENT PRODUCTS are high performance fluids and coating compounds designed to protect, prepare, clean and lubricate metal surfaces in industrial environments.

(For further technical information refer to Technical Data section.)

STOP SEIZE COPPER - STOP SEIZE NICKEL

Stop Seize Copper and Nickel are heavy duty, high temperature water repelling compounds that protect against locking and cold welding of metal parts. They are used to lubricate and to permit ease of assembly and dismantling without seizure or distortion of components subjected to high temperatures and heavy contact pressures. Stop Seize Copper is used for the protection of carbon steel components found in all facets of engineering and operates in environments up to 1090°C. Stop Seize Nickel is recommended for use with stainless steel and other alloys where a copper based anti-seize compound is unsuitable. It operates in environments up to 1400°C.

SURFACE CLEANER

A safe multipurpose, non-trichloroethane degreaser for use on heavy grease and oil deposits on metal, as well as an excellent general purpose degreaser. Use Cleaner Blend 300 prior to applying any Devcon epoxy or urethane compound. Parts need no rinsing and Cleaner Blend 300 leaves no residue on components. It evaporates quickly making it ideal for dip tanks.



Ordering Information

Product	Pack Size
Stop Seize	
D19020 Copper	500g
D19030 Nickel	500g
Surface Cleaner	
D19515	1L

Flexane® Rubber Repairs & Urethane Casting Compounds



DEVCON FLEXANE URETHANE COMPOUNDS are the toughest, most durable group of room temperature curing urethanes available to industry. These two component systems are available in putty and liquid form with a choice of engineered performance characteristics for protecting equipment against abrasion, impact and noise control and for casting custom rubber parts and low cost moulds. Flexane Liquid urethanes are widely used to make cost effective, non damaging holding fixtures, ultrasonic welding nests, punch dies and in combination with putties, repairs with a smooth, waterproof sealing coat.

(For further technical information refer to Technical Data section.)

FLEXANE® 80 PUTTY

A trowelable urethane that cures to a Shore A 87 hardness. Particularly easy to use, it requires no special tools or heat. Flexane 80 Putty is 100% solids, tear resistant, exhibits no cold flow and it retains its shape under pressure like rubber. Used to repair process equipment exposed to impact abrasion, vibration, expansion and contraction. Bonds to metal, concrete, rubber, wood and fibreglass surfaces. Flexane primers are recommended for maximum adhesion to metal, wood and concrete surfaces.

CONVEYOR BELT REPAIRS

Flexane 80 Putty can be used for making fast permanent emergency maintenance repairs to damaged conveyor belts and rubber rollers. Used in conjunction with Flexane FL10 Metal Primer and Flexane FL20 Rubber Primer.

FLEXANE® 80 LIQUID

Liquid version of Flexane 80 Putty. Castable, non-shrinking, urethane compound for making rugged, flexible moulds, forming dies, cast parts, non scratching holding fixtures and abrasion-noise resistant linings. Flexane 80 Liquid makes precision moulds that faithfully reproduce detail, will not change shape while curing, returns to original shape after 350% elongation and has a 10 hour demoulding time. Flexane primers are recommended for maximum adhesion to metal, wood and concrete surfaces.

FLEXANE® 94 LIQUID

A castable, non shrinking, low viscosity urethane compound that cures to a rigid rubber material with a Shore A 97 hardness. Use Flexane 94 for applications that require a faster curing, more rigid urethane than Flexane 80 and shorter demoulding times. Makes flexible moulds and non-scratching holding fixtures. Pour and mould cast rubber replacement parts that may have been discontinued.

FLEXANE® BRUSHABLE

High performance, brushable urethane coating that cures to a medium hard rubber, Shore A 86 hardness, for protection against wear due to abrasion and impact. Having outstanding tensile strength and very good chemical resistance, this product is excellent for lining and protecting hoppers, chutes, pump impellers, feeder bowls and fans. Flexane primers are recommended for maximum adhesion to metal, wood and concrete surfaces.



Use Flexane Putty to repair conveyor belts and rolls. It can also be trowelled on equipment surfaces to dampen sound and reduce vibration.



Use Flexane Liquids to mould small quantities of rubber parts easily and economically.



Flexane 80 Liquid is used to make a mould pattern.

R-Flex® Conveyor Belt Repair Kit

A unique urethane technology system that reduces operational downtime in simple, quick & cost-effective way Back in Service in 90 minutes

- ✓ **Very High adhesion**
- ✓ **Self-leveling liquid while applying then becomes non-sag gel in 4 minutes**
- ✓ **A self-contained kit for repairing holes, gouges & tears in conveyor belts**
- ✓ **Easy to mix and pour**



D15565 680g kit

FLEXANE PRIMERS are required for bonding of all Flexanes: Flexane 80 Putty, Flexane 80 Liquid, Flexane 94 liquid and Flexane Brushable.

FLEXANE® METAL PRIMER - FL10

Provides excellent adhesion (4.5kg/cm) to all dry metals for all grades of Flexane. Use in conjunction with FL20 Primer on metal surfaces exposed to water immersion or requiring adhesion in excess of 9kg/cm.

FLEXANE® RUBBER PRIMER - FL20

Provides excellent adhesion to rubber, wood, fibreglass, concrete and cured Flexane.

PRIMER SELECTION

Substrate	Primer	
	FL10	FL20
Metal, Dry (Adhesion 4.5kg/cm)	•	
Metal, Dry (Adhesion > 9kg/cm)	•	•
Metal (Water Immersion)	•	•
Concrete		•
Rubber		•
Cured Flexane		•
Wood		•
Fibreglass		•

Ordering Information

Product	Pack Size
R-Flex®	
D15565	680g
Flexane 80 Putty	
D15820	450g
Flexane 80 Liquid	
D15800	450g
D15810	4.5kg
Flexane 94 Liquid	
D15250	450g
Flexane Brushable	
D15350	450g
Flexane Primers	
D15980 (FL10 - Metal Primer)	120ml
D15985 (FL20 - Rubber Primer)	120ml

PRODUCTION APPLICATION SELECTOR GUIDE FOR FLEXANE RUBBER REPAIR PRODUCTS

Application	Product	Mix Ratio Wt/vol	Pot Life (mins)	Functional Cure (hrs)	Coverage (cm ² /kg@5mm)	Operating Temp (°C) (dry/wet)	Colour
Trowelable Rubber Repair	Flexane 80 Putty	72:28	20	12	848	82/49	Black
Semi-Rigid Castable Rubber	Flexane 80 Liquid	77:23	30	16	957	82/49	Black
Rigid Castable Rubber	Flexane 94 Liquid	69:31	10	16	957	82/49	Black
Brushable High Performance Rubber	Flexane Brushable	80:20	30	16	939	82/49	Black
Conveyor Belt Repair	Flexane 80 Putty	72:28	20	12	848	82/49	Black

Surface Preparation

The successful application of Devcon repair products and protective coatings depends on proper surface preparation. Dust, dirt, oil, grease, rust and dampness can all adversely affect the adhesion of epoxies causing the entire repair to chip, crack or break away under stress. A clean, dry, slightly roughened surface will ensure maximum adhesion of Devcon products.

GENERAL SURFACE PREPARATION GUIDELINES

In general, the following steps will help you properly prepare a surface prior to applying Devcon products:

- 1 - Make sure the surface is completely dry. Moisture will adversely affect the strength of the bond to the surface.
- 2 - Remove all surface contamination (paint, rust and grime) by abrasive blasting, sanding or other mechanical means.
- 3 - Degrease with Devcon Surface Cleaner.
- 4 - Abrade the surface to roughen it and create a surface profile.
- 5 - Use the appropriate Devcon primer.

For more detailed surface preparation information, refer to the appropriate substrate category below.

RUBBER

To properly prepare a rubber surface:

- 1 - Abrade the surface using a rubber rasp or a grinder with a wire wheel to produce a good surface profile. (Oils and contaminants imbedded in the rubber surface are typically released in this process.)
- 2 - Remove all oil and grease from the rubber surface with Devcon Surface Cleaner and an abrasive pad.
- 3 - Wipe the surface with a clean, lint-free cloth continuously until black residue is no longer picked up by the white cloth.
- 4 - Prime the surface as follows:
 - Rubber to metal:** Coat all metal surfaces (including stainless steel and aluminum) with two coats of Devcon FL-10 Primer. The primer will significantly improve adhesion of Devcon Flexane products to metal.
 - Rubber to metal (for immersion service):** Coat any metal that will be immersed in an aqueous solution with Devcon FL-10 Primer and Devcon FL-20 Primer. First apply the FL-10 Primer and let dry for 60 minutes. Next, coat with the FL-20 Primer. Let dry for 30 minutes before applying the Devcon Flexane product.
 - Rubber to rubber:** Coat all gum rubbers, neoprene, or cured urethanes with a thin coat of Devcon FL-20 Primer.
 - Rubber to concrete:** Coat concrete with Devcon FL-20 Primer. Multiple coats may be necessary because concrete is very porous. Let the primer dry for 30 minutes between coats.
 - Rubber to wood or fiberglass:** Coat these surfaces with Devcon FL-20 Primer. Soft woods will require a second coat due to their absorption characteristics.

If you are bonding rubber to other surfaces, contact us for a recommendation on primers and surface preparation procedures.

ITW Polymers & Fluids: 1800 063 511



METAL

To properly prepare a metal surface:

- 1 - If the surface is oily or greasy, degrease it with Devcon Surface Cleaner.
- 2 - Abrasive-blast the surface with 25-40 grit (or coarser) to produce a good surface profile. If you cannot abrasive-blast the surface, use a 60 grit or coarser sand-paper to achieve a similar result.
- 3 - Make repairs as soon as possible after blasting the substrate to avoid oxidation or flash rusting.
- 4 - Immediately coat the metal surface with Devcon FL-10 Primer if repairs can not be done quickly.

ALUMINIUM SURFACES

Oxidation on aluminium surfaces reduces epoxy adhesion. This oxidation film must be removed before repairing with Devcon Metal Repair Epoxies.

To properly prepare an aluminium surface:

- 1 - Remove oxidation by mechanical means such as grit-blasting or by chemical means such as acid etching.
- 2 - Follow the General Surface Preparation guidelines.

CONCRETE

To properly prepare a concrete surface:

- 1 - Degrease the surface with Devcon Surface Cleaner or any water-based emulsifying cleaner and rinse thoroughly. Multiple cleanings may be necessary. Power washers or steam cleaners are very effective and can reduce the number of passes needed to clean the surface. Let the surface dry thoroughly before proceeding.
- 2 - Remove any cap-curing agents that were applied to the concrete when it was poured. These agents form a dense, impenetrable finish, making it almost impossible for coatings to adhere to them.
- 3 - Shot blast (Blastrac) the concrete to create a porous surface profile. This will improve surface "wetting" and coating or repair product adhesion.
- 4 - If you cannot shot blast the concrete, use an acid etch to etch the surface. This will "open up" the pores of the concrete for improved adhesion. (This step must be performed after the floor has been degreased and does not replace degreasing.) Be sure to rinse the floor thoroughly several times to neutralize the acid in the acid etch before applying primer or topcoat.

WET SURFACES

In general, Devcon repair products and protective coatings will not adhere to wet surfaces.

To properly repair a wet surface:

- 1 - Review the General Surface Preparation guidelines.
- 2 - Thoroughly dry the surface. (If you are using Devcon Wet Surface Repair Putty (UW), refer to Underwater Surfaces section.)
- 3 - Stop all leaks or seepage as follows:
 - Shut off the flow or pressure;
 - Fit a wooden peg or a sheet metal screw into the hole; or
 - Stuff wax, cork, plumber's caulk or a cloth into the opening. If the leak is caused by corrosion, the sidewall might be weak. Open the orifice until sound metal is exposed and the wall is thick enough to be plugged.
- 4 - Remove surface condensation (sweating) or dampness with a heat gun or similar device.

UNDERWATER SURFACES

To properly prepare an underwater surface:

- 1 - Remove all dirt, barnacles, flaking paint, or algae/seaweed from the surface.
- 2 - Wipe the surface with a clean cloth to remove any film. Although you cannot degrease underwater, wiping and turning a clean cloth will often remove any film from the surface.
- 3 - Abrade the surface if possible. (Use a file or other mechanical means.)
- 4 - Remove oxidation by mechanical means such as high-pressure water or grit-blasting, or by chemical means such as acid etching.

Hints For Working With Epoxy

"Hints for Working with Epoxy" is designed to familiarise the user with the basic principles of mixing and applying filled epoxy compounds as well as answer some specific questions that may arise in working with epoxy materials.

Devcon epoxy compounds are versatile and durable materials used for general maintenance, repair and tooling applications. Mixing and application procedures are simple and the results will be very gratifying, providing you follow directions carefully. Proper performance of the material depends upon careful adherence to directions.

The chemistry of epoxies. Devcon epoxies are two component materials that cure, or harden, by chemical reaction between the resin and hardener when they are combined. This chemical reaction generates heat. It is important to keep the following principles in mind when mixing epoxies:

- The larger the mass of epoxy, the faster the cure.
- The higher the temperature, the faster the cure.
- For proper performance, epoxy must be mixed in specified ratios.
- Typical working time for 500g of epoxy at 24°C is 45 minutes. Functional cure is achieved overnight (16 hours).
- Specially formulated epoxies are available that offer fast cure time, extended cure time, wet surface/low temperature cure, high heat resistance and exceptional tolerance to chemicals. When doing an epoxy application, be sure to specify the epoxy with the best performance characteristics for the job.

High Temperatures. When the temperature is above 24°C epoxy will cure more quickly. Epoxy should be mixed in small masses to prevent the material from curing too rapidly.

Low Temperatures. Most epoxies will not cure properly at temperatures below 15°C unless the epoxy and, if possible, the part to be repaired are heated to room temperature. To promote curing of epoxy at low temperatures, see below.

To speed up cure of epoxy, the material should be mixed, applied to the repair area and warmed with a heat lamp or other heat source. Heat lamp should be placed about 0.5m from the epoxy. Never expose epoxy to a direct flame.

To increase adhesion make sure the application surface is free from oil, dirt and moisture. Clean the surface with Cleaner Blend 300, or similar solvent and wipe thoroughly. For maximum adhesion, particularly to a rusted or painted surface, we recommend sandblasting, abrading or chemically etching the surface.

To prevent sticking of epoxy to a surface, coat the surface with Rocol Dry Film Teflon* Spray or other coating material such as Teflon*, silicone or wax.

Mixing. Add hardener to resin and mix thoroughly. The compound should be a smooth, lump-free consistency after mixing for about four minutes. To insure thorough mixing of putty-type epoxies, particularly when mixing larger quantities, resin and hardener can be turned out onto a flat disposable surface and mixed with a stiff spatula.

For low-cost, convenient dispensing of epoxy, use a clean polyethylene squeeze bottle or caulking container. This method is particularly suitable for grouting applications.

To obtain a smooth finish cover the uncured epoxy with a sheet of polyethylene or waxed paper. Remove the sheet when the epoxy is fully cured. The surface can also be smoothed by drawing a trowel moistened with water across the surface of the uncured material. Moisten the trowel with each stroke.

Cure. Most epoxy compounds will cure overnight (16 hours) at which time the material can be machined, drilled or painted. As previously described, the actual cure time of epoxy is determined by the size of the mass of epoxy and the temperature. Under some conditions the epoxy will reach full cure in less than 16 hours. For example, epoxy will be fully cured in only 4 hours when heat cured at 65°C.

Specially Formulated Epoxies

The following Devcon epoxy compounds are formulated to perform under specific operating conditions. Choose the best epoxy for your application/operating environment.

Fast cure. Plastic Steel 5-Minute Putty (cures 60 min), Combo Wear Fast Cure (cures 70 min).

Wet surface / low temperature cure. Choose Wet Surface Repair Putty which cures at 4°C.

High Temperature Resistance. For maximum operating temperatures in excess of 120°C, choose from the following: Titanium and Ceramic Repair Putty/Brushable Ceramic - max, 175°C.

Chemical Resistance. The following have excellent resistance to mineral acids and most organic solvents:

Titanium Putty, Ceramic Repair Putty, Brushable Ceramic/Sprayable Ceramic.

Corrosion Resistance. To obtain best protection against corrosion choose from: Wear Resistant Putty, Titanium Putty, Ceramic Repair Putty, Brushable Ceramic/Sprayable Ceramic and Wet Surface Repair Putty.

Abrasion Resistance. Sliding abrasion - Wear Resistant Putty, Ceramic Repair Putty, Brushable Ceramic Titanium Putty, Wear Guard Fine Load, Combo Wear Fast Cure. Severe Impact - Carbide Putty and Wear Guard High Impact

Machinable finish. Choose Titanium Putty for shafts, keyways and other equipment where application surfaces must be machined to conform to exacting dimensions.

Casting Epoxies

Dry Model and container completely before casting parts. This is particularly important when parts are made of porous material. For best results such parts should be sealed with two coats of lacquer.

Silicone, PTFE spray, or wax should be applied to the model in order to release the cast part from the model. For detailed reproduction, we recommend giving the model three coats of hard finish wax, buffing each coat well between applications.

To eliminate bubbles when casting liquid epoxy:

- Mix the resin and hardener slowly to avoid trapping air in the mixture.
- Brush a thin coat of epoxy on the model to be duplicated before casting the remainder of the epoxy.
- Pour the epoxy in a fine stream into one corner of the box containing the model. Do not pour back and forth.
- Position the model so the widest part is at the bottom of the box.
- Seat out any air under the model to avoid air being trapped in the epoxy while the material is curing.

Shrinkage of cast epoxy depends on the container and the amount of epoxy cast. A thick walled metal container will dissipate the heat generated by the curing epoxy and will minimise shrinkage. Sheet metal, wood and plastic containers, however, tend to hold heat and will cause shrinkage.

To avoid warpage in a large epoxy casting use a span depth ratio of 8 to 1. That is, for every 8cm of length, the ideal epoxy thickness is 1cm.

- Thinner sections can be cast if the epoxy is reinforced with angle iron, wire mesh or glass cloth.
- If a casting is thicker than 10cm, pour it in layers of 3.5cm to 5cm, allowing the epoxy to cool to room temperature before casting each layer.

An epoxy die for forming metal should have a radius equal to 3 times the thickness of the metal being formed if it is a soft metal of light gauge (22 and up). On heavier gauge metal the radius should be 5 times the thickness of the metal.

To reduce the cost of a large epoxy casting we recommend using sand, wooden blocks or other inexpensive material for the centre of the casting. Epoxy is then used for the more important wearing or working surface.

To form sharp bends in metal on an epoxy die, insert metal inserts or wear strips into the soft epoxy at the point where the greatest wear will occur.

When fabricating an epoxy punch and die we recommend using a high temperature sheet wax to allow for metal thickness.

Still have a question about working with epoxy? If we haven't answered all your questions, please call your local Devcon office (see back cover).

*Teflon is a Registered Trademark of DuPont Corporation

Technical Data

	Plastic Steel Putty (A)	Plastic Steel Liquid (B)	Plastic Steel 5-Min Putty	Aluminium Putty (F)	Stainless Steel Putty (ST)	Titanium Putty	Wet Surface Repair Putty	Wear Resistant Putty (WRP2)	Carbide Putty	Ceramic Repair Putty	Brushable/Sprayable Ceramic	Wear Guard™ Ultra	Wear Guard™ Fine Load	Combo Wear Guard™ Hi Impact	Flexane® 80 Fast Cure (FC)	Flexane® 80 Putty	Flexane® 80 & 94 Liquid	Flexane® Brushable Urethane
Anti-vibration mounts																		
Bearings - reseating worn/oversized	●		●			●									●	●		
Casting repair	●	●		●	●	●		●										
Cast rubber parts																		●
Chocking/levelling		●				●												
Condensers/tube sheets							●		●	●								
Conveyor belt repairs															●			
Cyclones											●	●	●	●				●
Engine blocks	●			●		●												
Exhausters								●			●	●	●	●				
Expansion joints																		●
Feeder bowls - lining															●			●
Food processing equipment				●														
Floor repair						●									●	●		
Gaskets															●	●		
Gearboxes	●		●	●		●												
Holding fixtures		●																●
Hoppers/bins		●							●		●	●	●	●		●	●	
Impellers							●		●	●								●
Leaky pipes	●		●			●												
Lining chutes								●			●	●	●	●	●	●		
Metal forming dies		●		●														
Mould making		●		●														●
Noise reduction															●	●		
Pipe elbow lining						●		●	●		●	●	●	●				
Prototypes	●	●		●	●													●
Pulverisers/mills								●			●	●	●	●				
Pump repairs - slurry							●		●		●	●	●	●				
Pump repairs - water						●		●	●	●								
Rubber rollers															●	●		
Shafts/keyways	●					●		●										
Tank repairs	●			●											●	●	●	
Tank lining										●								
Tumbling barrels															●	●	●	
Valve repair						●	●		●	●								

SPECIAL FEATURES AND OPERATING CONDITIONS

Acidic conditions						●			●	●								●
Corrosion						●		●	●	●								
Impact								●					●					
Low Temperature cure 4°C			●			●												
Machinable epoxy	●	●	●	●	●	●												
Non-machinable epoxy							●	●	●	●	●	●	●	●				
Operating temp. above 120°C						●			●	●	●	●	●	●				
Sliding abrasion							●		●	●	●	●	●	●				
Wear and erosion						●	●		●	●	●	●	●	●				
Wet surface cure						●												

Technical Data

Typical physical properties after 7 days @ 21°C

USE OF THE CHEMICAL RESISTANCE TABLES

The data supplied has been generated over the years by observing the behaviour of Devcon products in use, laboratory testing and interpolation of our own testing and results contained in the literature. They are based on total immersion of the product in the specified chemical at ambient temperature. As such they can only act as guidelines for actual applications since factors such as surface preparation, temperature, concentration and chemical combinations etc may significantly affect performance. Note that data for an emergency repair product, SF, refers to short term immersion only.

There is NO substitute for realistic testing.

There is NO substitute for talking to us - we may have information on a similar application indicating what products can and cannot be used.

Lastly, it often makes sense to test an application on a small scale by, for instance, coating only one pump in twenty or repairing an area of conveyor belt rather than the whole belt. If we are unsure of any application, in either a positive or negative way, we will always advise you to either test on a small scale or err on the side of caution.

The data is shown as a comparative resistance to attack

5) Excellent

May be suitable for long term immersion.

4) Good

Suitable for medium term or intermittent contact.

3) Fair

Suitable for intermittent contact only.

2) Poor

Suitable for splash contact with Immediate clean up only.

1) Not recommended.

All products are good in water, leaded petrol, mineral spirits, ASTM #3 oil and propylene glycol.

Only ratings of 3-5 should be taken as any indication of suitability - testing is recommended for any 3 rating.

CAUTION: Epoxies are generally not recommended for long term exposures to concentrated acids and organic solvents. The information contained in these Chemical Resistance Charts is given in good faith and is believed to be reliable. We cannot assume responsibility for extrapolation of this data into situations which are different from the actual test conditions. It is the user's responsibility to determine the suitability of any of the products for actual use, in consultation with ITW Polymers and Fluids.

Product Name	Colour	Mix Ratio by Wt. Resin:Hardener	by Vol. Resin:Hardener	Mixed Viscosity @ 24°C	Specific Volume cm ³ /kg	Coverage cm ² /kg @ 5mm
Plastic Steel Putty	Dark Grey	9:1	2.5:1	Putty	430	860
Plastic Steel Liquid	Dark Grey	9:1	3:1	15-25,000	473	946
Plastic Steel 5-Min. Putty	Dark Grey	1.7:1	1:1	Putty	542	1084
Aluminium Putty	Aluminium	9:1	4:1	Putty	632	1264
Fasmetal 10	Aluminium	1:1	1:1	Paste	622	1264
Stainless Steel Putty	Grey	11:1	3.7:1	Putty	448	896
Titanium Putty	Grey	4.3:1	3:1	Putty	424	848
Wet Surface Repair Putty	Grey	1.4:1	1:1	Putty	625	1250
Wear Resistant Putty	Dark Grey	9:1	4:1	Putty	571	1142
Carbide Putty	Dark Grey	8:1	4:1	Putty	574	1148
Ceramic Repair Putty	Dark Blue	7:1	4.3:1	Putty	646	1292
Brushable Ceramic	Red, Blue	5.5:1	3.4:1	32,000	596	1.55m ² /kg @ 0.4mm
Wear Guard Ultra	Grey	2:1	2:1	Putty	447	894
Wear Guard Fine Load	Grey	2:1	2:1	Putty	447	894
Sprayable Ceramic*	Blue or Grey	*14:2.5:1	*7.1:2.1:1	33,600	592	10m ² /3.8L @ 400µm
Combo Wear Fast Cure	Grey	2:1	2:1	N/S Putty	447	894
Wear Guard High Impact	Dark Grey	2.5:1	2.5:1	N/S Putty	448	896

* Mix ratio of Resin:Hardener:Thinner

Product Name	Kerosene	Methanol	Toluene/Xylene	MEK	Chlorinated Solvents
Plastic Steel Putty	4	3	4	2	3
Plastic Steel Liquid	4	3	4	2	3
Plastic Steel 5-Min. Putty	4	3	4	2	1
Aluminium Putty	4	3	4	2	3
Fasmetal 10	4	3	4	2	3
Stainless Steel Putty	4	3	4	2	3
Titanium Putty	5	5	5	4	4
Wet Surface Repair Putty	4	3	4	2	3
Wear Resistant Putty	4	3	4	2	3
Carbide Putty	4	3	4	2	3
Ceramic Repair Putty	5	5	5	4	4
Brushable Ceramic	5	5	5	1	3
Wear Guard Fine Load	4	3	3	2	3
Sprayable Ceramic	5	5	5	1	3
Combo Wear Fast Cure	4	3	3	2	3
Wear Guard High Impact	4	2	4	2	3

Pot life of 45kg minutes @ 24°C	Maximum Operating Temperature °C	Hardness Shore D ASTM D1708	Cure Shrinkage cm/cm ASTM D2566	Cured Density ASTM D792g/cm ³	Adhesive Tensile Shear ASTM D1002 A1 to A1 Etched MPa	Compressive Strength of elastic unit ASTM D695 MPa	Tensile Strength ASTM D638 MPa	Flexural Strength ASTM D790 MPa	Coefficient of Thermal Expansion ASTM D696 (cm/cm)°C x 10	Thermal Conductivity ASTM C177 cal-cm/sec/cm ² °C x 10	Dielectric Strength ASTM D149 Volts/mm
45	120	85	0.0006	2.33	19.3	57	22.2	38.6	86	1.37	1181
45	120	85	0.0006	2.11	19.3	70.3	33.8	51.6	68	1.39	1181
5	93	85	0.009	1.84	16.0	44.1	21.7	35.7	62	2.65	1181
60	120	85	0.0008	1.58	17.9	58.1	25.4	46.6	52	1.73	3937
60	120	85	0.001	1.72	17.2	58	30.2	56.5	52	1.73	3937
45	120	85	0.001	2.23	16.4	58	23	36	61	1.23	1181
20	175	87	0.001	2.36	13.8	129.6	27.5	53.1	40	1.95	2205
45	93	82	0.002	1.57	18.5	38.8	19.0	34.4	104	1.41	5900
60	120	85	0.0005	1.75	15.2	67.6	29.6	44.8	58	1.44	15748
50	120	85	0.0009	1.75	9.3	56.3	18.2	37.8	95	1.65	7874
25	175	90	0.002	1.69	13.8	87.6	16.4	44.6	32	1.88	14567
40	176	87	0.0022	1.53	13.8	105	26	55.1	35	1.92	15037
45	149	87	0.0014	2.2	16.4	75.8	29.6	49.6	61	1.81	13385
45	149	87	0.0014	2.2	16.4	75.8	29.6	49.6	61	1.81	13385
40	176	87	0.002	1.68	13.8	104.8	26.2	55	72	1.92	15039
7-12	149	87	0.0005	2.2	16.4	75.8	29.6	49.2	61	1.75	13385
45	150	85	0.0006	2.2	17.7	50.0	29.1	42.4	62	1.81	13385

Hydrochloric Acid 0-10%	Hydrochloric Acid 10-20%	Hydrochloric Acid 20%+	Sulphuric Acid 0-10%	Sulphuric Acid 10-20%	Sulphuric Acid 20%+	Acetic Acid Dilute	Glacial Acetic Acid	Sodium Hydroxide 0-10%	Sodium Hydroxide 10-20%	Sodium Hydroxide 20%+	Ammonia
3	2	2	3	2	1	2	1	4	4	3	4
3	2	2	3	2	1	2	1	4	4	3	4
3	3	2	3	2	1	2	1	4	4	3	4
3	2	2	3	2	1	2	1	1	1	2	4
3	2	2	3	2	1	2	1	2	2	2	4
3	2	2	3	2	1	2	1	4	4	3	4
4	3	2	5	4	3	5	1	5	5	4	5
3	2	2	3	3	3	1	1	4	4	3	4
3	2	2	4	2	1	2	1	4	4	3	4
3	2	2	3	2	1	2	1	4	4	3	4
4	3	2	5	4	4	5	1	5	5	4	5
5	4	3	5	4	4	5	1	5	5	4	5
3	3	2	3	2	2	3	1	4	4	3	4
5	4	3	5	4	3	5	1	5	5	4	5
3	3	2	3	2	2	3	1	4	4	3	4
5	4	3	5	4	4	5	1	5	5	4	5

Technical Data

DEVCON FLEXANE URETHANE COMPOUNDS

Typical physical properties after 7 days cure at Room Temperature

	Viscosity with Hardener (cps) @ 24°C	Hardness Shore A ASTM D2240	Pot Life of 454g @ 24°C in Min.	Demolding Time @ 24°C in Hours	Specific Volume cm ³ /kg	Cured Density ASTM 792g/cm ³	DRY/NET Maximum Operating Temperature °C	Cure Shrinkage ASTM D2366 cm/cm	Elongation % ASTM D412	100% Modulus ASTM D412 MPa	Tensile Strength ASTM D412 MPa	Tear Resistance ASTM D624 kg/cm	Abrasion Resistance Loss**	Dielectric Strength ASTM D149 Volts/mm	Dry Film Coverage cm ² /kg @ 5mm
Flexane 80 Liquid	10,000	87	30	10	957	1.08	82/49	0.0007	650	4.48	14.5	44	325	13800	1914
Flexane 80 Putty	Putty	87	20	10	848	1.18	82/49	0.0007	300	6.8	23.6	53	280	13800	1696
Flexane 94 Liquid	6,000	97	10	5	957	1.10	82/49	0.0004	500	7.58	27.6	73	330	13400	1914
Flexane Brushable ***	40,000	86	45	NA	939	1.05	82/49	0.23*	600	4.21	24.2	70	95	13800	1277

*Solvent loss

** Taber Abrader H-18 wheel mg loss/1000 cycles 1000g wt

***Putty 80% solids. Brushable 68% solids

CHEMICAL RESISTANCE FLEXANE - IMMERSION

Sample Size: 12mm x 12mm

Cure: 7 days at Room Temperature

Immersion: 30 days

	Hydrochloric Acid 10%	Sulphuric Acid 10%	Water	Saturated Salt Solution	Ammonia	Sodium Hydroxide 10%	Gasoline	Kerosene	Mineral Spirits	ASTM #3 Oil	Methanol	Propylene Glycol	Chlorinated Solvent	MEX	Toluene
Flexane 80 (Liquid & Putty)	VG	VG	VG	VG	VG	VG	U	F	F	U	U	U	U	U	U
Flexane 94 Liquid	VG	VG	VG	VG	VG	VG	U	F	F	U	U	U	U	U	U
Flexane Brushable ***	F	F	VG	VG	VG	VG	U	U	F	U	U	U	U	U	U

Key: VG - Very Good; F - Fair; U - Unsatisfactory

PRIMERS:

FL10 Primer

- Provides excellent adhesion to all metals.
- Use with all Flexanes.
- Use with FL20 for applications on metal surfaces that are exposed to water immersion.
- Use with FL20 for applications on metal requiring adhesion greater than 9kg/cm.

FL20 Primer

- Provides excellent adhesion to rubber, wood, fibreglass and concrete.
- Use with all Flexanes.

Primer Selection:

Primers are required for bonding Flexane to most substrates.

Choose the recommended primer or combination from the above chart.

PRIMER SELECTION

Substrate	Primer FL10	FL20
Metal, Dry (Adhesion 4.5kg/cm)	•	
Metal, Dry (Adhesion > 9kg/cm)	•	•
Metal (Water Immersion)	•	•
Concrete		•
Rubber		•
Cured Flexane		•
Wood		•
Fibreglass		•

Chemical Resistance Data

CHEMICAL RESISTANCE OF DEVCON CORE LINE PRODUCTS

INTRODUCTION

The data represented here indicates the performance of five families of DEVCON® Core Line products when immersed in a wide variety of organic and inorganic liquids, solids and gases.

With a wide product range like Devcon's it is not possible to supply all the possible permutations and combinations of products and chemicals.

The data contained here represents the compilation of many years of experience, but even so this data must be treated with every care since many factors influence "Chemical Resistance". There is "NO" substitute for testing 'actual' products on 'actual substrates' under the actual chemical environmental conditions expected. Anything else can only provide guidelines.

All products are good in water, leaded petrol, mineral spirits, ASTM#3 oil and polypropylene glycol. Only ratings of 3-5 should be taken as any indication of suitability - testing is recommended for any 3 rating.

5 - Excellent may be suitable for long term immersion

4 - Good, suitable for medium term or intermittent contact

3 - Fair, suitable for intermittent contact only

2 - Poor, suitable for splash contact with immediate clean-up only

1 - Not recommended

Chemical	Metal Filled Epoxy Putties & Liquids	Plastic Steel 5-Minute Putty (SF)**	Titanium Putty	Ceramic Filled Epoxies	Firecote & Urethane Casting Compounds
Acetone	2	2	3	3	1
Ammonium Hydroxide 10-20%	3	3	5	5	4
Ammonium Hydroxide 20%+	3	3	4	5	3
Apple Juice	4	4	5	5	4
Asphalt Liquid	5	5	5	5	-
Aviation Fuel*	5	5	5	5	3
Benzene	4	4	5	5	2
Benzoic Acid	3	3	5	5	-
Brake Fluid (guide)	5	5	5	5	4
Chlorine (wet)	2	2	3	3	1
Carbon Tetrachloride (wet/dry)	3	3-4	4	4	1
Corn Oil	5	5	5	5	4
Di-Ethyl Ether	3-4	3	4	4	2
Diesel Oil	5	5	5	5	3
Ethylene Glycol	4	4	5	5	3
Ferric Chloride (wet)	5	5	5	5	4
Flourine	3	3	4	4	1
Formic Acid	1	1	3	3	-
Freon	4	4	5	5	1
Lime Water	5	5	5	5	5
LPG	5	5	5	5	-
Lubricating Oil	5	5	5	5	2
Methylene Chloride	2	2	2	2	1
Molybdenum Disulphide	5	5	5	5	5
Nitric Acid 10-20%	2	2	3	3	1
Nitric Acid 20%+	1	1	2	2	1
Petrol	5	5	5	5	4
Phenol (100%)	1	1	1	1	1
Phenol (10% solution)	4	4	5	5	2
Phosphoric Acid (dilute)	2-3	2-3	3-4	3-4	2-3
Potassium Hydroxide 20%	4	4	5	5	4
Potassium Hydroxide 20%+	3	3	4	4	3
Silicone Oil	5	5	5	5	5
Sodium Chloride	5	5	5	5	5
Sodium Hypochloride	4	4	5	5	3
Tetrachloroethylene	3	3	4	4	1
Transformer Oil (guide)	5	5	5	5	2
Urea	5	5	5	5	5
Uric Acid	5	5	5	5	5
Water (distilled, mineral, sea brine, fresh etc)	5	5	5	5	5
Xylene	4	4	5	5	2

*AVGAS see Aviation Fuel

** Data for SF refers to short term (ie:days) immersion only



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