Devcon®

User's Guide/Specifications

Flexane®

Urethane Repair Compounds

The family of Devcon® Flexane® urethanes are designed for making molds, holding fixtures and abrasion resistant coatings.

Pourable **Flexane® 80 Liquid** and **Flexane® 94 Liquid** are ideal for making molds and holding fixtures. **Flexane® Brushable** is formulated for tough, durable, high performance abrasion resistance.

Products that can be applied quickly and easily by plant personnel.

www.devcon.com

RUBBER REPAIR

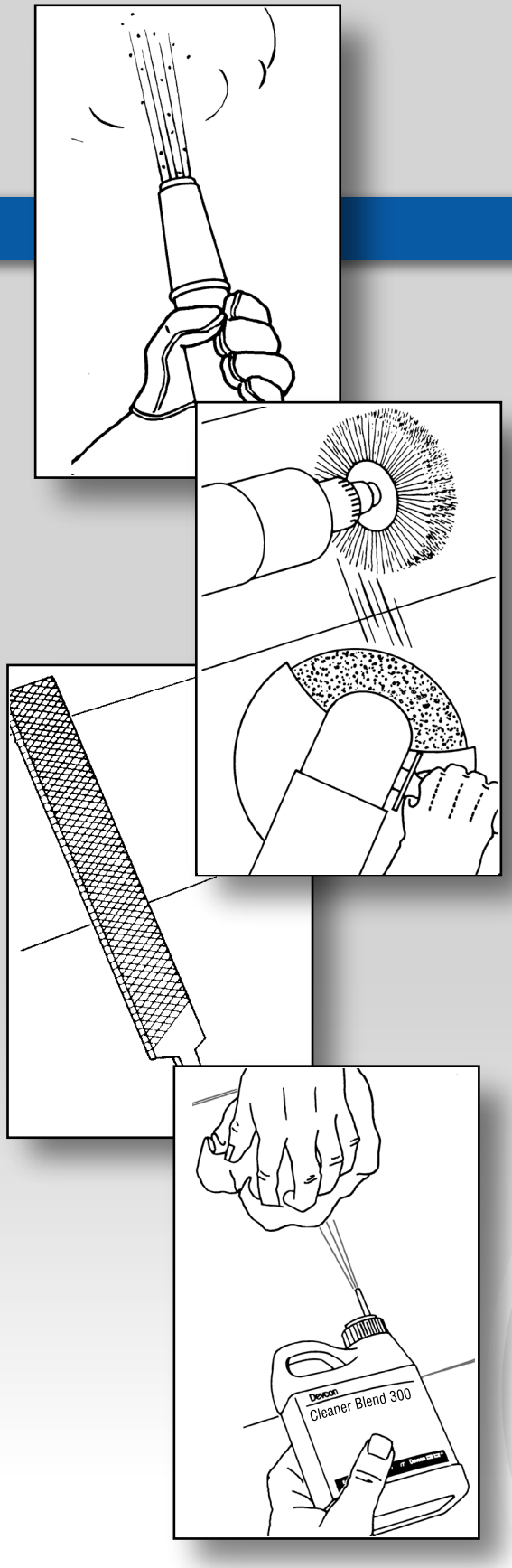
Table *of* Contents

Surface Preparation

Successful application is largely due to proper surface preparation.

Lack of adhesion to a substrate can cause the entire repair to chip, crack or" fall-out" under stress.

Surface conditions will vary from job to job, and the following guidelines will help in the preparation of most substrates.



Cleaning & Priming

RUBBER

1. Remove all surface contamination (paint and grime) from surface by grinding with wire wheel or rubber rasp to obtain a good "profile".
3. Degrease with **Cleaner Blend 300 #19510** and an abrasive pad to remove oil and grease pulled up to the surface.
4. Wipe surface with a clean, white, lint-free cloth numerous times, until the black residue no longer transfers onto the cloth.

METAL

1. Degrease area with Devcon® **Cleaner Blend 300 #19510** to remove oils and grease.
2. Remove all surface contamination (paint, rust, and grime) from surface by abrasive blasting (25-40 grit or coarser) or sanding (60 grit or coarser).
3. Degrease again with **Cleaner Blend 300 #19510**.
4. If immediate repair is not possible, coat surface with Devcon **FL-10 Primer #15980** to prevent oxidation and flash rusting.

CONCRETE

1. Degrease area with Devcon® **Cleaner Blend 300 #19510** or any water based emulsifier cleaner and thoroughly rinse area. Multiple cleanings may be necessary. A power washer or steam cleaner is useful for this step. ***Let floor dry thoroughly before applying Primer and Flexane***.

DEGREASING NOTE:

With surfaces immersed in oil, there is always the possibility that oil absorbed into the metal surface will cause an adhesion problem while Flexane® is curing.

1. Repeated applications of Devcon® **Cleaner Blend 300 #19510** will help "pull-out" the oil from the surface. When cleaning a rubber surface, the use of an abrasion pad will help.
2. Also, heating the part with a heat gun, or by putting the part in an oven, will force the oil out of the pores.
3. Allow part to cool and clean again with **Clean Blend 300 #19510**. Repeat heating and cleaning until no oils are present.

SUBSTRATE PRIMING

METAL SURFACES

Use 2 coats of Devcon's **FL-10 Flexane® Primer #15980** on all metal substrates, including stainless steel and aluminum.

RUBBER SURFACES

Use Devcon's **FL-20 Flexane® Primer #15985** to coat all gum rubbers, neoprene, or cured urethane. For ultimate/peel adhesion to rubber only use **FL-40 Flexane® Primer #15984.**

IMMERSION SUBSTRATES

All metals that will see immersion in aqueous solutions need to follow a two-step process . First apply **FL-10 Flexane® Primer #15980** and let dry for 60 minutes. Next coat with **FL-20 Flexane® Primer #15985** and let dry for 30 minutes before application of Flexane material.

CONCRETE SURFACES

Use Devcon's **FL-20 Flexane® Primer #15985** to coat this substrate. Being very porous, concrete may need several coatings for proper adhesion. Let dry for 30 minutes between coats.

WOOD, FIBERGLASS

Use Devcon's **FL-20 Flexane® Primer #15985** for all wood products, soft woods will need 2 coats because of their absorption characteristics.

NOTE: Applying 2 coats of **FL-10 Flexane® Primer #15980** to metal substrates will improve adhesion. All other substrates, contact Devcon for the proper selection of Primer and application procedures.

Questions? Contact Devcon Technical Services:

800-933-8266 **www.devcon.com**

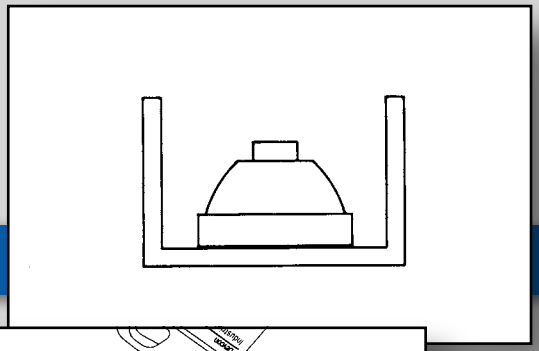
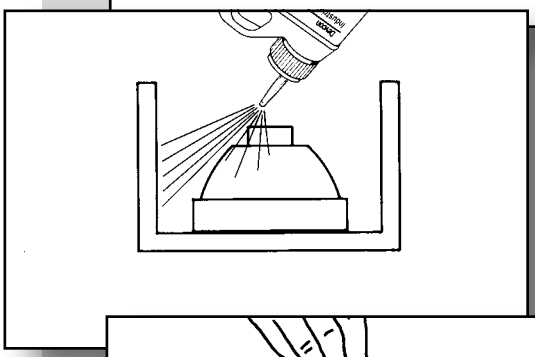


Figure 1



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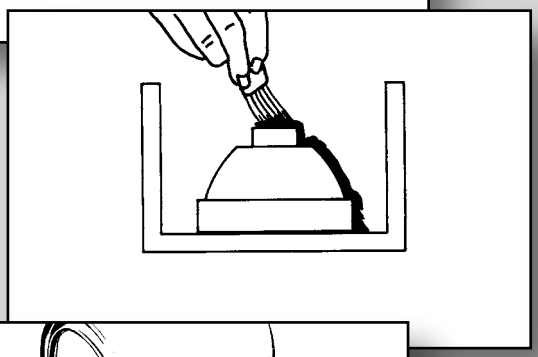

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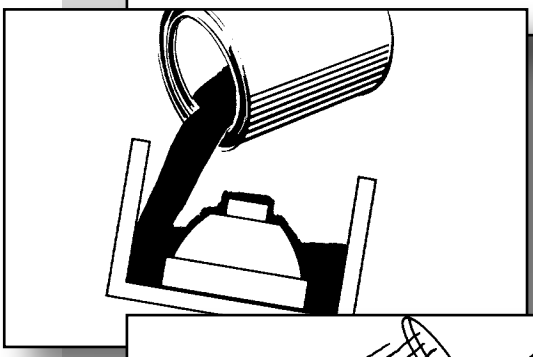

Figure 4

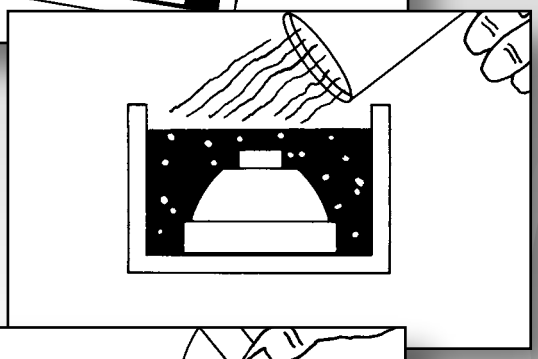

Figure 5

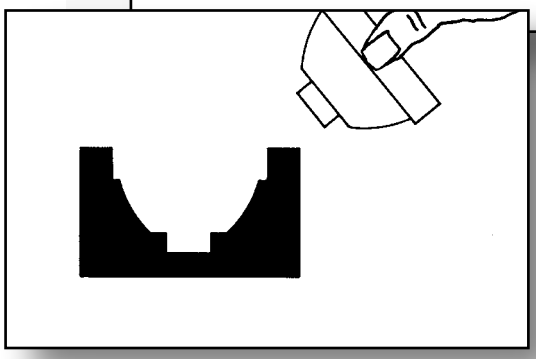

Figure 6

Mold Making & Fixturing

Depend on Devcon's **Flexane® 80 Liquid** and **Flexane® 94 Liquid** to make rigid, yet removable holding fixtures. Intricate, detailed parts can be replicated to the exact detail using Flexane®.

First, follow the guidelines previously described for *SURFACE PREPARATION.*

1. Set the part to be replicated securely into the box. Modeling clay may be used to seal the edges **(Figure 1)**.
2. Make a box big enough to hold the fixture. If porous materials are used, seal to prevent sticking. Next, coat the entire box and fixture with Devcon's **Release Agent #19600**. Let dry for 10 minutes, coat again and let dry for 10 minutes **(Figure 2)**.
3. Brush apply a coat of **Flexane® 80 Liquid #15800** over the surface to help- alleviate air bubbles in the curing process **(Figure 3)**.
4. Slightly tilting the fixture to allow air to escape and prevent "blow holes", pour in the **Flexane® 80 Liquid #15800 (Figure 4)**.
5. To further ensure no "blow holes" in the final reproduction, wave a hot air gun over the top of the mold to help release air bubbles **(Figure 5)**.
6. Demold time for **Flexane® 80 Liquid #15800** is 10 hours and 5 hours for **Flexane® 94 Liquid #15250 (Figure 6)**.

NOTE: For a softer fixture that helps demold the part easier, use **Flexane® 80 Liquid #15800** which provides a 87 Durometer on the Shore A scale. For a more rigid mold, 97 Durometer on the Shore A scale, use **Flexane® 94 Liquid #15250**.

To adjust the Durometer (hardness) of your fixture to a softer and more pliable rubber, use Devcon's **Flex-Add™ #15940**. Add this to the curing agent before mixing. This will give you a a range of hardness from 46 to 87 Shore A to work with.

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Conveyor Belt Repair

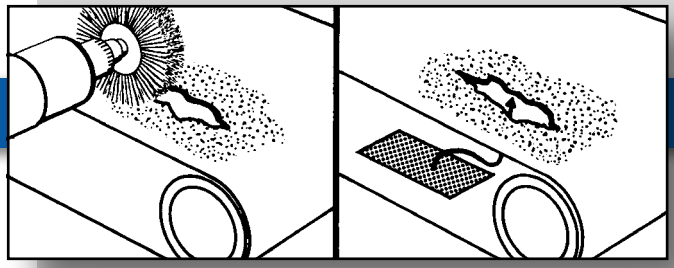


Figure 1

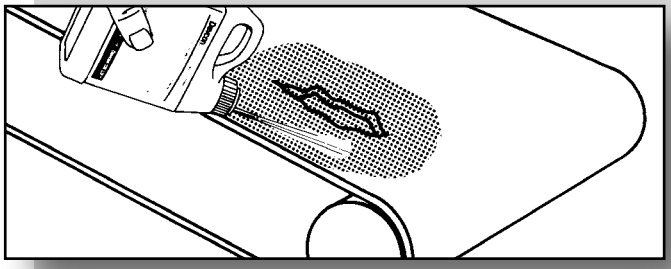
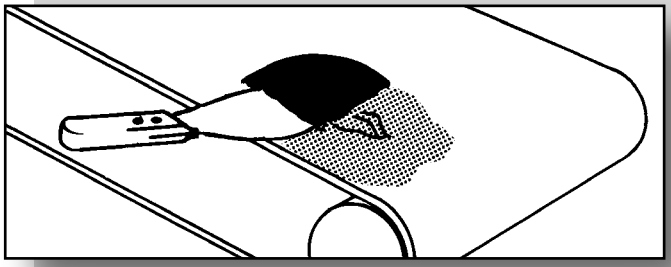


Figure 2



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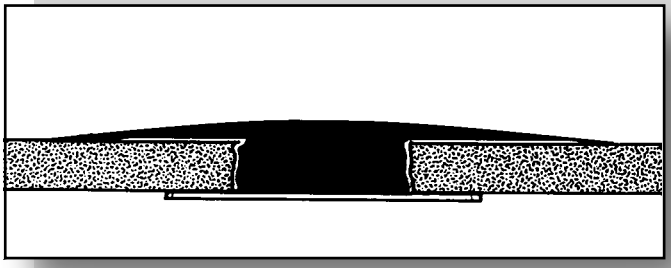


Figure 4

The most common damage to a conveyor belt is a hole in the belt caused when the transported aggregate wedges itself into the wiper area.

First, follow the guidelines previously described for *SURFACE PREPARATION.*

1. Grind belt area well for good adhesion, apply duct tape from underneath to prevent dripping. Abrade area again and remove all dust **(Figure 1)**.
2. Apply **FL-20 Flexane® Primer #15985** to the tear area approximately 4-8 inches out around the tear. Let dry for 30 minutes **(Figure2)**.
3. Apply **Flexane® 80 Putty #15820** on and around the tear area 4-8 inches **(Figure 3)**.
4. "Feather" out the material for a smooth, not a bump, surface at least 1/8" thick for strength and flexibility **(Figure 4)**.

NOTE: Sometimes it is better to skive the belt down 1/32" around the hole as to make the repair level with the surface of the existing belt.

NOTE: Devcon's **Flexane® Repair Kit #15165** has all the necessary products for you to use for all conveyor belt repairs.

Conveyor Belt Repair (cont.)

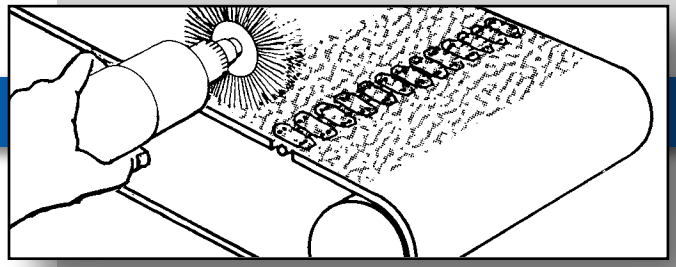
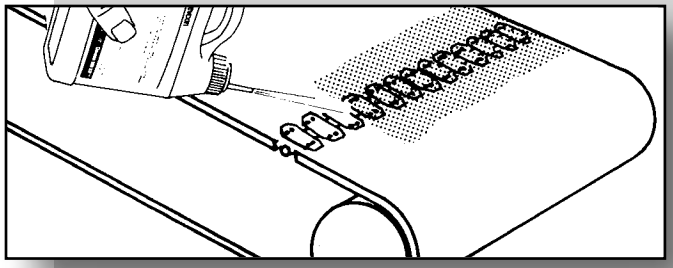


Figure 1



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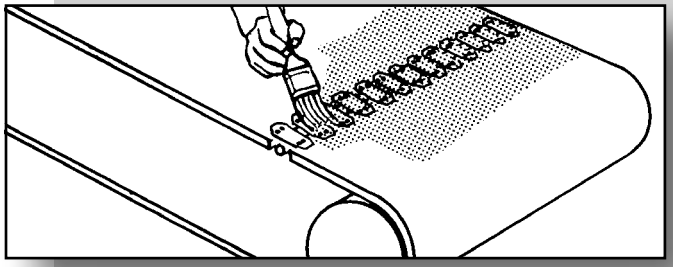

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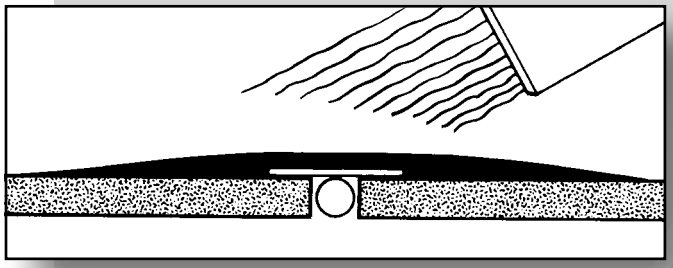


Figure 4

Another common repair is to the "clips" area where the belt is spliced together. Where fine aggregate gets in and wears out the "pins" of the joint, it is recommended that the clips be coated with Flexane®.

First, follow the guidelines previously described for *SURFACE PREPARATION.*

1. Roughen "splice" area with coarse wire wheel 4-8 inches on each side **(Figure 1)**.

2. Clean surface thoroughly **(Figure2)**.

3. Apply **FL-20 Flexane® Primer #15985** to the clips area approximately 4-8 inches out on each side. Let dry for 15-30 minutes. Apply a piece of duct tape over the clips and coat with petroleum jelly, or any wax material, to provide a release "bridge over" area to prevent Flexane from cracking when in use **(Figure 3)**.

4. Apply **Flexane® 80 Putty #15820** over the prepared area 4-8 inches out. "Feather" out the material for a smooth, not a bump, surface at least 1/8" thick for strength and flexibility. Functional cure in 12 hours. Adding heat to the surface will increase the cure speed of the repair. **(Figure 4)**

NOTE: For a functional cure within 2-3 hours use Devcon's **Fast Cure Rubber Repair Putty #15049.** Follow steps 1-3 and use our 400 ml Cartridge System on the splice.

NOTE: To accelerate **Flexane® 80 Putty** to get a 3 hour functional cure time, use **Flexane® Accelerator #15990** with **Flexane® 80 Putty**.

Questions? Contact Devcon Technical Services:
800-933-8266 **www.devcon.com**

Expansion Joints

Due to its flexibility for both expansion and contraction, **Flexane® Fast Cure Liquid** is ideal to fill cracks in concrete expansion joints.

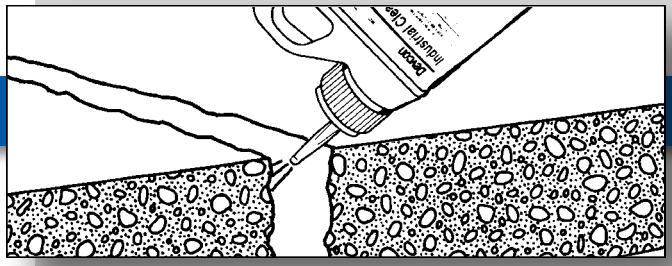
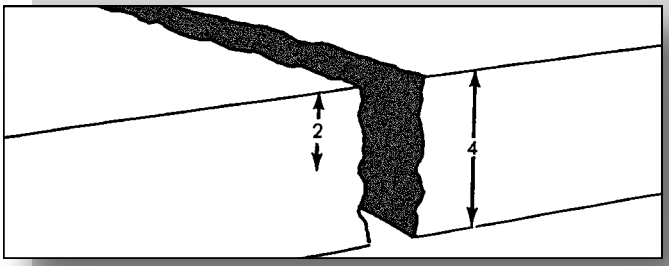


Figure 1



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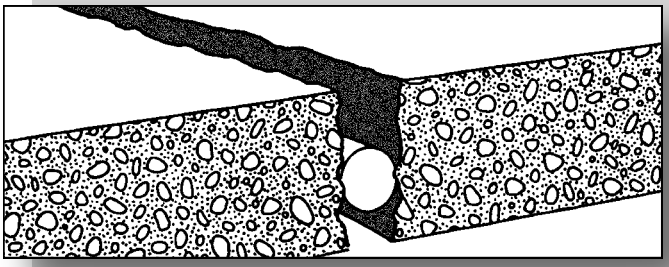

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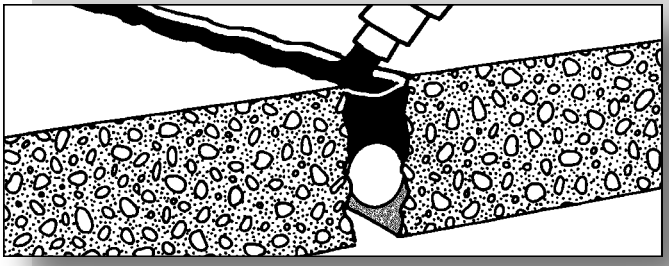

Figure 4

First, follow the guidelines previously described for *SURFACE PREPARATION.*

1. Clean and remove loose particles and "chips", and degrease area **(Figure 1)**.
2. Check depth of the concrete slab, the expansion joint should be only 1/2 of that dimension. Prime only the sidewall of the joint with **FL-20 Flexane® Primer #15985** applying 2 coats **(Figure 2)**.
3. Insert a piece of foam backer rod at the halfway mark along the joint. Fine sand, filled exactly half way, can be substituted **(Figure 3)**.
4. Use Devcon's **Fast Cure Rubber Repair Liquid # 15050** with mix nozzle and inject the **Flexane®** into the joint. Functional cure is in 2-3 hours and forklift traffic may go over the joint at this time **(Figure 4)**.

NOTE: DO NOT OVERFILL. Leave slightly depressed from surface to avoid over-spill onto concrete slab.

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800-933-8266 **www.devcon.com**

Lining Applications & Noise Reduction

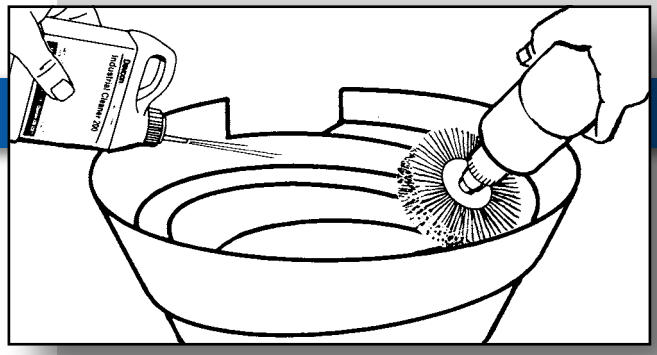
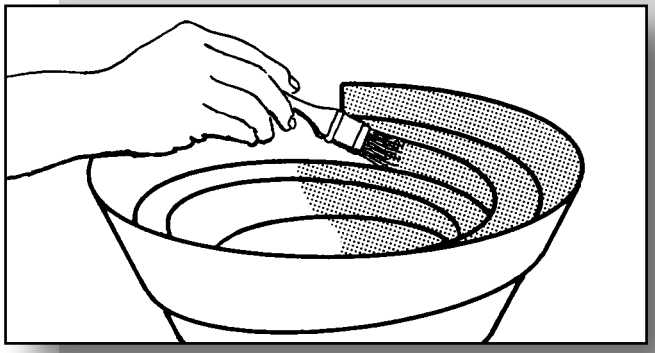


Figure 1



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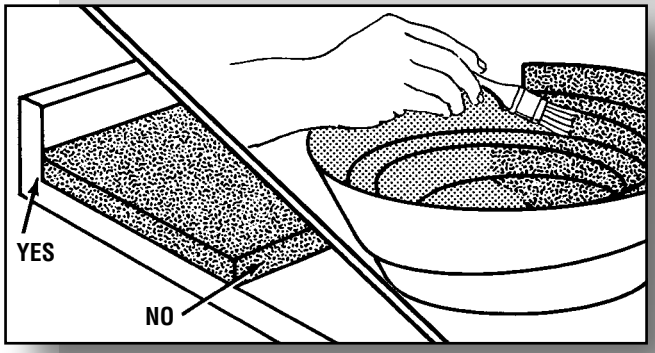

Figure 3

Due to its outstanding quality of elasticity, **Flexane®** is used widely in applications requiring impact resistance such as feeder bowls in plants, chutes in cement, coal and mining plants, and cyclones.

First, follow the guidelines previously described for *SURFACE PREPARATION.*

1. Be sure to abrade surface for good adhesion **(Figures 1)**.
2. Apply coating of **FL-10 Flexane® Primer #15980** onto the metal substrate and let dry thoroughly. Follow with coating of **FL-20 Flexane® Primer #15985** and let dry for 30 minutes **(Figure 2)**.
3. Before applying the **Flexane®** material, be sure the substrate has a "butt joint". Leaving an open edge will create the possibility of the aggregate undercutting the material. Apply at least 1/16", or thicker, coat for best wear resistance **(Figure 3)**.

NOTE: Applying multiple coats of **Brushable Flexane® #15350** to the substrate will buildup the wearing ability of the coating.

Flexane® 80 Liquid #15800 or **Flexane® 80 Putty #15820** can also be used as a lining and for noise reduction. Follow steps 1 and 2 before using these products.

RUBBER REPAIR

Questions? Contact Devcon Technical Services:
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Rubber Roller Repair

Repair of rubber rolls in the paper industry, and rubber-lined condenser water boxes are excellent applications for Flexane®.

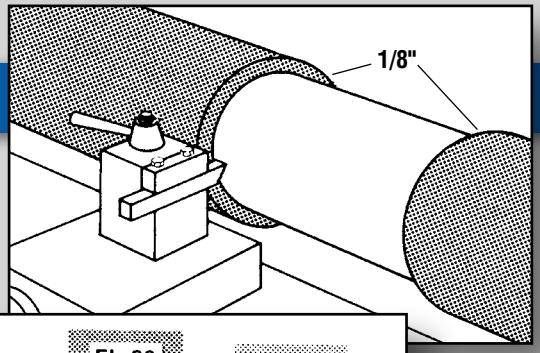
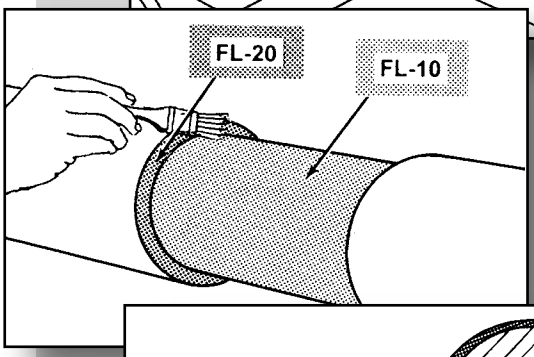


Figure 1



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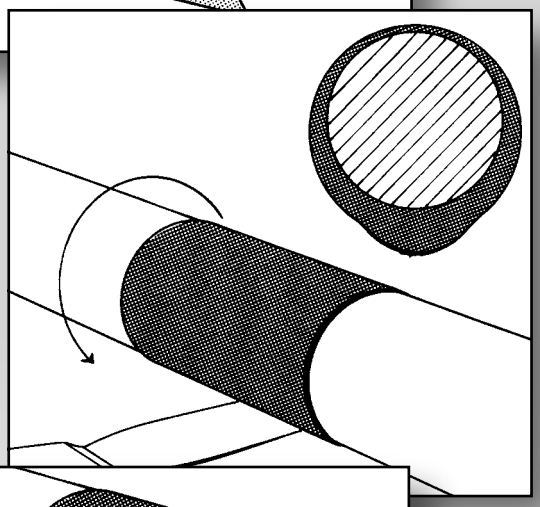

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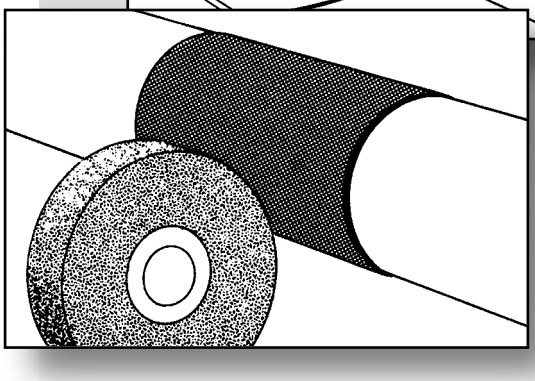

Figure 4

First, follow the guidelines previously described for *SURFACE PREPARATION.*

1. Machine the worn rubber COMPLETELY off the roll down to the metal core shaft or just undercut the rubber at least 1/8". Be sure to leave a distinct edge on both sides of the worn area **(Figure 1)**.

2. Apply **FL-10 Flexane® Primer #15980** to the metal core of the roll, and then apply **FL-20 Flexane® Primer #15985** over the **FL-10** and the EDGES. Let dry. This is ESSENTIAL for proper adhesion **(Figure 2)**.

3. Apply **Flexane®** as follows: While roll is turning slowly start to apply the **Flexane®**. Be sure to compress the urethane onto the metal shaft and into the EDGES of the rubber as smoothly as possible. Allow the shaft to rotate for a few hours to allow the **Flexane®** material set-up and cure, or you risk the chance of drop-off or sag if not kept in motion. **(Figure 3)**.

4. Now smooth the surface using a No. 60 diamond grinding wheel or by machining with a carbide tip taking a small cut without generating a great amount of frictional heat **(Figure 4)**.

NOTE: Use caution as the buildup of frictional heat will cause **Flexane®** to rip and tear, leaving a rough finish.

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Typical Physical Properties

	Mix ratio resin, curing agent (ratio % by weight)	Viscosity with Hardener (cps)	Specific Volume (in^3 / lb.)	Hardness, Shore A	Pot Life of 1 lb. in minutes	Demolding time in hours	Operating temp. - DRY (max.°F)	Operating temp. - WET (max.°F)	Cure Shrinkage (in. / in. ASTM D 2566)	Elongation (% ASTM D 412)	Tensile Strength (psi ASTM D 412)	Dielectric Strength (ASTM D 149 volts/mil)	Coverage @ 1/4" thickness	Functional Cure (hrs.)	Tear Resistance (pli ASTM D 624)	Abrasion Resistance	
URETHANE REPAIR PRODUCTS																	
Flexane® 80 Putty	72:28	Putty	23.5	87	20	10	180	120	0.0014	300	1700	350	94	12	300	280	
Flexane® 80 Liquid	77:23	10,000	26.5	87	30	10	180	120	0.0018	650	2100	350	106	16	350	285	
Flexane® 94 Liquid	69:31	6,000	26.5	97	10	5	180	120	0.0014	500	2800	350	106	16	415	330	
Flexane® Brushable	80:20	40,000	26	86	45	16	180	126	0.23*	600	3500	340	104	24	400	90	
Flexane® High Performance Putty	94:6	Putty	23.5	78	10	10	180	120	0.12*	600	4500	350	95	16	400	140	
Flexane® Fast Cure Putty	80:20	Putty	23.5	88	8	NA	180	120	0.0014	500	2400	350	94	3	275	220	
Flexane® Fast Cure Liquid	80:20	5800	26.5	94	8	NA	180	120	0.0018	450	3300	350	106	2	430	330	

*Solvent Loss Shrinkage

Chemical Resistance

KEY: **E** = Excellent
V = Very Good
F = Fair
U = Unsatisfactory

	ACID										ALCOHOL		KETONE	ALKALINE					HYDROCARBON						CHLORINATED HYDROCARBON				SALT				MISC.	
	Acetic (dilute) 10%	Acetic (glacial)	Hydrochloric 10%	Hydrochloric 50%	Sulfuric 10%	Sulfuric 50%	Nitric 10%	Nitric 50%	Phosphoric 10%	Phosphoric 50%	Methanol	Isopropanol	Acetone	Methyl ethyl ketone	Ammonium hydroxide 20%	Potassium hydroxide 20%	Potassium hydroxide 40%	Sodium hydroxide 10%	Sodium hydroxide 20%	Benzene	Gasoline (unleaded)	Mineral spirits	Kerosene	Toluen	Xylene	Carbon tetrachloride	Methylene chloride	Perchloroethylene	1,1,1-trichloroethane	Aluminum sulfate 10%	Sodium carbonate 10%	Trisodium phosphate 10%	Sodium chloride brine	Sodium hypochlorite	Cutting oil
URETHANE REPAIR PRODUCTS																																		
Flexane® 80 Putty	U	U	V	V	V	V	F	F	V	F	U	U	U	U	V	V	V	V	V	U	U	U	U	U	U	U	U	U	V	V	V	V	U	F
Flexane® 80 Liquid	U	U	V	V	V	V	F	F	V	F	U	U	U	U	V	V	V	V	V	U	U	U	U	U	U	U	U	U	V	V	V	V	U	F
Flexane® 94 Liquid	U	U	V	V	V	V	F	F	V	F	U	U	U	U	V	V	V	V	V	U	U	U	U	U	U	U	U	U	V	V	V	V	U	F
Flexane® Brushable	U	U	F	F	F	F	F	F	F	F	U	U	U	U	V	V	V	V	V	U	U	U	U	U	U	U	U	U	V	V	V	V	U	F
Flexane® High Performance Putty	U	U	F	F	F	F	F	F	F	F	U	U	U	U	V	V	V	V	V	U	U	U	U	U	U	U	U	U	V	V	V	V	U	F
Flexane® Fast Cure Putty	U	U	V	V	V	V	F	F	V	F	U	U	U	U	V	V	V	V	V	U	U	U	U	U	U	U	U	U	V	V	V	V	U	F
Flexane® Fast Cure Liquid	U	U	V	V	V	V	F	F	V	F	U	U	U	U	V	V	V	V	V	U	U	U	U	U	U	U	U	U	V	V	V	V	U	F

Ordering Information

PRODUCTS	STOCK NO.	SIZE
Flexane® 80 Putty	15820	1 lb.
	15850	4 lb.
Flexane® 80 Liquid	15800	1 lb.
	15810	10 lb.
Flexane® 94 Liquid	15250	1 lb.
	15260	10 lb.
Flexane® Brushable	15350	1 lb.
Flexane® High Performance Putty	15330	1 lb.
Flexane® Repair Kit	15165	Kit
Flex-Add™	15940	8 oz.
FL-10 Primer	15980	4 oz.
FL-20 Primer	15985	4 oz.
FL-40 Primer (Rubber)	15984	4 oz.
Flexane® Accelerator	15990	12 oz.
Fast Cure Rubber Repair Putty	15049	400 ml cart.
Fast Cure Rubber Repair Liquid	15050	400 ml cart.

Questions? Contact Devcon Technical Services:
800-933-8266 **www.devcon.com**

Devcon®

Usage Selector Guide

MRO

Maintenance, Repair & Overhaul

METAL/EQUIPMENT REPAIR	Plastic Steel® Putty (A)	Aluminum Putty (F)	Titanium Putty	Magic Bond™ Epoxy Putty	Wear Guard™ High Temp.	Ceramic Repair Putty	Brushable Ceramic	Wear Guard™ High Load, Fine Load, Combo Wear	Plastic Steel B Alum. F2	Stainless Steel® Putty	Underwater Repair Putty
Acid Resistant Coating					▲	▲					
Casting Repair	▲	▲	▲								
Chemical Resistant Coatings			▲			▲	▲				
Chocking, Leveling Compound								▲			
Coating (Impact, Abrasion)					▲	▲	▲	▲			
Condenser Tube Sheet Coating							▲				
Corrosion Resistant Coating					▲	▲	▲	▲			
Cyclones					▲			▲			
Epoxy (Fast-Cure Repairs)				▲							
Fans/Exhauster Fan Blades						▲		▲			
Holding Fixtures (Making Molds)									▲		
Hopper (Rebuild and Coat)							▲	▲			
Leaks (Drums, Pipes, Tanks)	▲			▲							
Lining Coal Chutes					▲			▲			
Machinable Repair Material	▲	▲	▲						▲	▲	
Meat & Poultry Plants	▲		▲				▲			▲	
Pipe Elbow Coatings/Linings					▲			▲			
Pulverizers/Mills					▲			▲			
Pump Repairs-Slurry			▲			▲		▲			
Pump Repairs-Water			▲								▲
Rebuild Worn Threads, Keyways, Metal	▲		▲						▲		
Repairing Engine Blocks	▲		▲								
Shaft Repairs			▲								
Tank Linings					▲	▲					▲
Tank Repairs (Hole)	▲			▲							
Valve Rebuild/Repairs	▲	▲	▲								
Wet/Damp Surface Bonding				▲							▲

FLOOR REPAIR	Epoxy Coat™ 7000 AR	Floor Patch™	Floor Patch™ FC	Ultra Quartz™	Deep Pour Grout™	Epoxy Coat™ 6500 Non VOC	Epoxy Coat™ 7000 Non VOC	Epoxy Concrete Sealer	Floor Grip™
Acid Resistant Coating	▲			▲		▲	▲	▲	
Anchoring Bolts in Concrete		▲	▲		▲				
Anti-Skid (Floors, Ramps, Docks)									▲
Chemical Containment Coatings	▲			▲			▲	▲	
Chocking Equipment		▲	▲		▲				
Coatings (Impact, Abrasion)	▲					▲	▲		
Expansion Joints		▲	▲	▲					
Floors (Hole Filling & Patching)		▲	▲						
Leveling Equipment					▲				
Leveling Floors		▲			▲				
Meat & Poultry Plants	▲	▲	▲	▲	▲	▲	▲	▲	▲
Metal Coatings	▲								▲
Warehouse Floor Coatings							▲	▲	
Wet/Damp Surface Coatings		▲	▲	▲		▲	▲	▲	▲

RUBBER REPAIR	Flexane® 80 Putty	Flexane® High Perf. Putty	Flexane® Fast Cure	Flexane® Fast Cure Liquid	Flexane® Brushable	Cable Cast FR	Flexane® Belt Repair Kit	Flexane® 80 Liquid	Flexane® 94 Liquid	Edge & Seal (T-35)	High Temp. Edge & Seal (T-36)
Casting Molds, Rubber Parts	▲					▲	▲	▲			
Conveyor Belt Repair	▲		▲	▲		▲					
Coatings (Chutes, Hoppers)	▲	▲			▲						
Coating (Impact, Abrasion)	▲	▲			▲						
Expansion/Control Joints			▲	▲							
Feeder Bowl Coating	▲	▲			▲						
Gaskets	▲		▲				▲	▲	▲	▲	
Holding Fixtures	▲						▲	▲			
Metal Coatings	▲	▲	▲	▲	▲		▲	▲			
Moldmaking				▲			▲	▲			
Noise Reduction Coating	▲			▲			▲	▲			
Potting Compounds				▲		▲			▲	▲	
Rubber Roll Repair	▲			▲		▲	▲	▲			
Re-jacketing Electrical Cable					▲						

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RUBBER REPAIR

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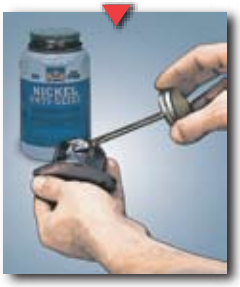

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For more information on this and our entire line of OEM and MRO products, please call:
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