GELCOAT SYSTEM
COSMETIC REPAIR FOR BATHTUBS & SHOWERS

DESCRIPTION

This repair system utilizes the same original product manufacturing materials for repairing gelcoat baths and showers This system can be used to repair surface cracks, air pockets, chips, gouges, burns, and other types of minor damage. The gelcoat resin will be color matched to the original manufacturer's color, if it is provided to Multi-Tech Products at the time of purchase.
Gelcoat bathtubs and showers are produced by spraying a thin layer (~ .030" to .040") of special polyester resin, which has been colored as desired, on the surface of a male mold. This is followed with a thick layer(s) of chopped glass fibers in polyester resin (FRP) to provide the structure of the product. These materials and procedures can be easily adapted to other gelcoat/FRP products.

Multi-Tech Products also provides a "MMA" and a Quick Glaze system for repair of acrylic baths.

Visit www.multitechproducts.com for more information on the gelcoat system, as well as procedures for other products and types of surface or structural damage.

Most cosmetic repairs to bath and shower surfaces require a resin to fill in holes or cracks and reestablish the structure and surface. Multi-Tech Products has an easy-to-use poly-filler designed to avoid failure problems seen with standard polyester body fillers and putties. These common automobile body fillers will absorb water and chemicals and fail prematurely. Therefore, use of these alternate products can have a severe detrimental effect on the performance and durability of the repair. Multi-Tech Products also offers a high performance acrylic resin filler for applications that require resistance to a harsh environment.

The following procedure will be for repairing a minor hole in the surface of a bathtub..

While there is no implied warranty, the materials and techniques described in these procedures have been designed to withstand the normal operating conditions of bathtubs and showers. However, success of the final repair also is dependent on the experience and skill of the individual repair technician.

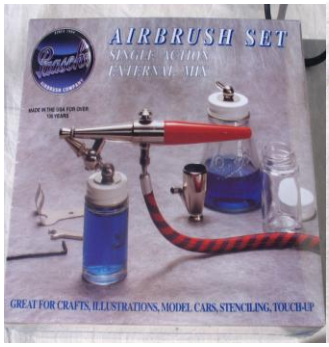
MATERIALS

- The white Poly-filler (a modified polyester resin) with white cream hardener
- Color-matched gelcoat with MEKP Hardener
- Acetone for thinning gelcoat, if required.
- Sandpaper (100, 220, 320, 400, and 600 grit)
- Rubbing compound
- Gloves, mixing cups, and stir sticks
- Polyvinyl alcohol (PVA)

EQUIPMENT

The equipment listed below is useful for the system. Most of this equipment is available from Multi-Tech Products. Other equipment can be purchased from paint supply stores. A working knowledge of the equipment and application techniques is assumed for these repair procedures.

- A ¼" Die Grinder(electrical or pneumatic) with cylinder grinding points (Dremel-type tools typically are not robust enough for this job)
- Industrial Heat Gun (a home hair blow dryer is not sufficient)
- An Airbrush like Paasche #H with a "3" or "5" tip (kits include a 2½ oz. and a ½ oz. spray cup, a cloth braided hose). Extra cups for mixing may be necessary.
- For large (> 1 sq.ft.) repair areas, a Touch Up Spray Gun with siphon or gravity cup is useful.
- High pressure (> 65psi) and flow (1 CFM) air source – A compressor needs to be a tank-type, to provide adequate CFM. The pump alone is inadequate without a tank reservoir.
- High Speed, Heavy Duty Polisher/Buffer - at least 2500 – 3500 rpm is recommended (variable speed is optimum). Refer to our training DVD.
- Buffer Pad (industrial grade)- purchase the pad first and then match it up to the appropriate buffer.



Airbrush

Heat Gun


Drill & Grinder


Buffer

SAFETY PRECAUTIONS

Bath repairs require personal contact with a variety of components, each having its own unique characteristics. When handling these materials, read and follow the safe handling procedures on the labels and the applicable MSDS. During grinding, drilling, sanding, etc., eye and hand protection is required. Do not breathe vapors or mists. Individuals with a history of lung or breathing problems should not use or be exposed to this product. Keep away from heat, sparks and flame. Vapors may cause a flash fire. Close containers after each use. Dispose of properly.

PROCEDURE

Some general rules of thumb for gelcoat repair are:

- Use proper catalyst ratios, and do not exceed 3%.
- Add heat to speed curing, not more catalyst.
- Do not add too much thinner – 10 to 15% maximum.
- Use PVA (polyvinyl alcohol) to protect the repair until it has fully cured. It eliminates the tackiness by creating a barrier to exposure to oxygen.
- Use the correct type of sprayer to apply gelcoat – not Preval type.

Problems can occur due to the following:

- Insufficient or too much heat
- Incorrect amount of catalyst
- Too much thinner or color toner

Before a repair can be started, the bath must be drained of water, and be dry and clean. Clean with a soft cloth or paper towel moistened with isopropyl alcohol.

The steps used to repair a surface defect are:
1) Defect or damage preparation (grinding and sanding)
2) Filling the void and curing
3) Sanding
4) Applying the gelcoat resin and curing
5) Spraying PVA protective coating
6) Buffing and polishing

It is recommended that the surface be allowed to fully cure for 12 hours or overnight before water is re-introduced to the surface. Cool temperatures will lengthen this cure time.

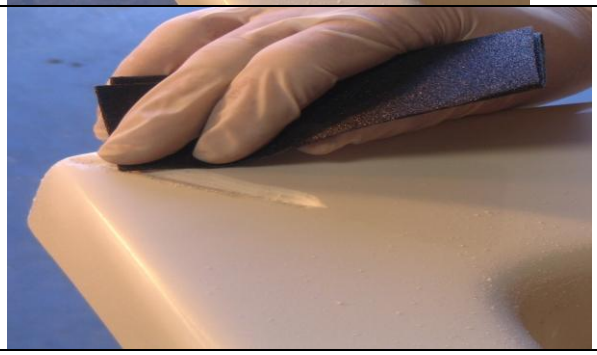
Preparing the damage and filling

Gelcoat bathtubs and showers are produced using a male mold and aspraying resin, followed with layer(s) of polyester resin reinforced with chopped fiberglass (FRP).

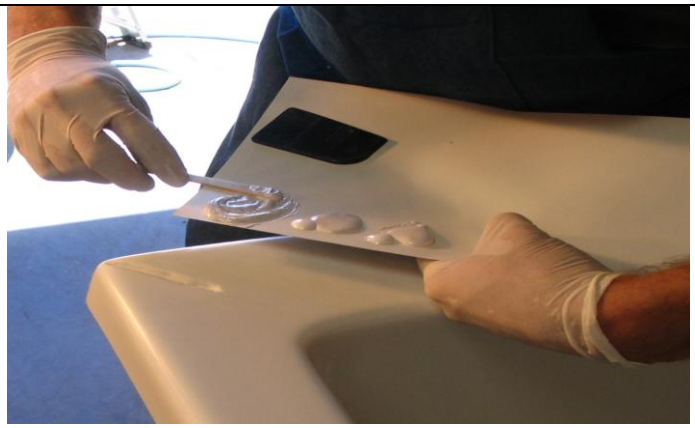
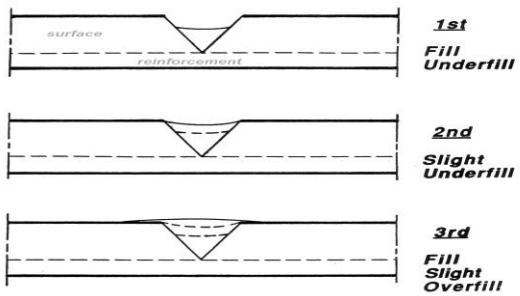
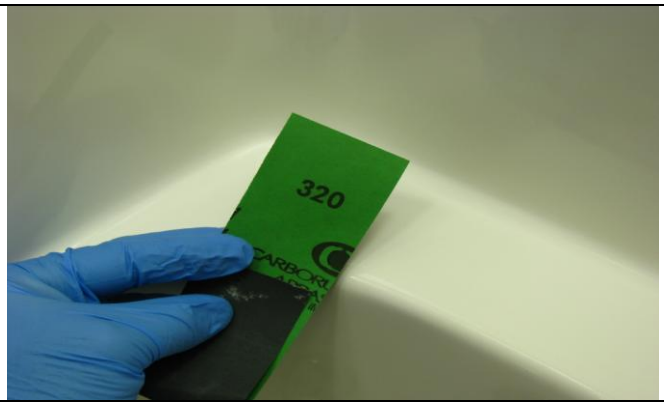
There are many common types of damage or defects in gelcoat bathtubs that can be repaired. Some types require that a grinder be used to remove the gelcoat down to the fiberglass reinforcement. In order to promote maximum adhesion with the filler, the edges of the void created should be tapered at a 45° angle. This procedure example will be a small, round hole that does not penetrate the entire wall thickness.

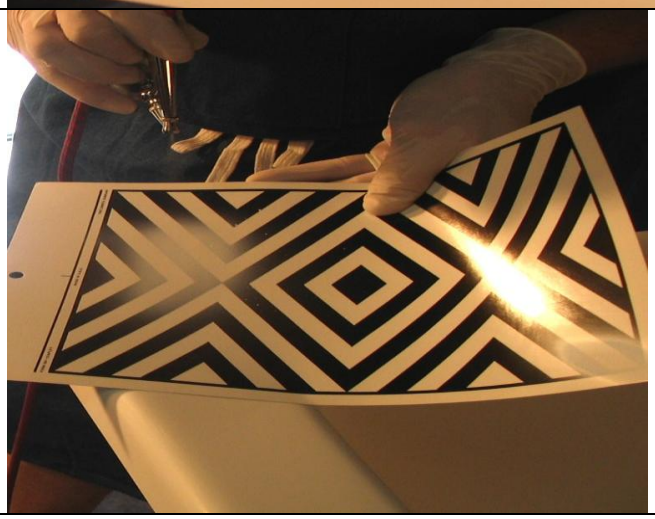
However, if a crack is being repaired, the first step would be to terminate the crack by routing it out from one end to the other using the rotary grinder. Material should be removed so that a "V"-shape groove about 1/8" deep is created. The grinding should extend ¼" beyond each end of the crack. Unless the original fracture extends into and/or through the entire wall structure, the grinding depth should stop before going through the entire wall thickness. Refer to the website for procedures when a hole is present or when structural damage requires repair.

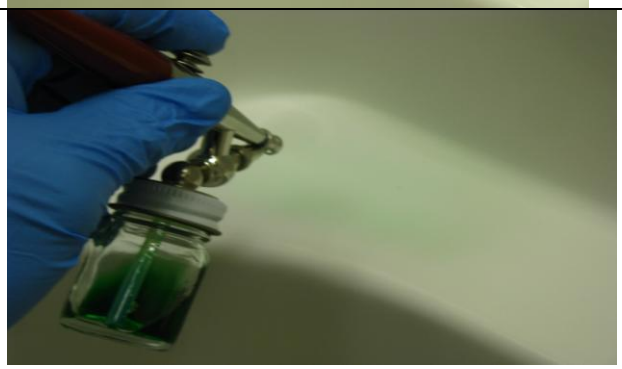
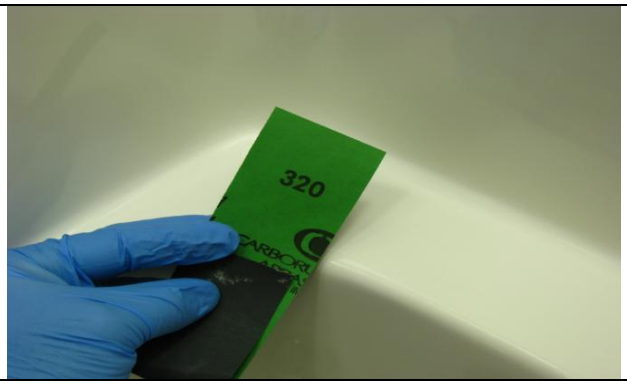
2) Remove all loose fragments from the edge by sanding with 100 grit wet or dry sandpaper. Control the sanding to the immediate area of the defect to minimize the size of the repair.
3) Clean the area with a soft cloth or paper towel, dampened with acetone.



Filling preparation & application:

The poly-filler is satisfactory for most bath applications. **Poly-Filler process**	
5a) To prepare the poly-filler, which needs to be used within 5 minutes after mixing with hardener, use the wood mixer to place 3 small piles of filler on a piece of cardboard (or substitute). The total quantity of material should be enough to fill the required void space from grinding. Squeeze out enough cream hardener to represent 1/20th of the filler and place alongside each pile of filler. 6) Mix one pile of filler and hardener with the wood mixer, and apply to the ground out void. Do not completely fill the space. Repeat this process with each of the 3 piles. Allow each layer to set before the next layer application. Indirect heat can be used to accelerate the drying. Too much heat can cause air bubbles. The final fill will be slightly higher than the surrounding surface.	
It is best to use at least three thin layers to complete the fill. See diagram.	
6) After final filling and curing, sand the area so that it is even with the surface. Sanding with 100 grit paper is normally adequate.	
7) If pinholes or other imperfections exist, a thin layer of the same filler can be filled over the area. This thin layer will cure rapidly. Do not use any other type of filler. This is referred to as a skim coat (1 mil thick)	
8) Apply heat to complete curing, and begin sanding with a progression from 320 to 400 grit wet sandpaper. Clean the surface with a clean rag moistened with acetone. The gelcoat should be sprayed while the surface is still warm.	
Gelcoat Application	

The materials needed include the gelcoat resin that matches the bath or shower, the resin (HPT-9/MEKP) hardener, and possibly the acetone for thinning. PVA is recommended as a final surface sealer for improved performance, and a buffing compound is recommended for buffing and polishing.	
Start by pouring the desired amount of the gelcoat into a mixing cup or airbrush bottle.	
Dab a small amount on the surface of the bath or shower in the repair area and check for color match. If adjustment is necessary, add appropriate toner(s), and repeat until satisfactory color match is achieved. See our website for color adjusting guide and toners.	
Now add 8 drops of MEKP for each ½ oz. of gelcoat. Spray some of the material on a test surface to see if it has proper spray viscosity. It can be thinned by adding up to 15% acetone. This mixture will harden within 15 minutes, so it needs to be used promptly.	

Be sure to set airbrush pressure to 45 to 55psi. Spray the gelcoat on the repaired surface to achieve a uniform, complete covering of the area, and without runs. Try to create a uniform, smooth, glossy surface. The goal is to achieve approximately a 10 mil thick wet film. Allow it to cure for 30 minutes.	
Immediately apply moderate heat around the sprayed area, without causing excessive heat. If PVA is being used, now is the time to spray it. Do not spray it too soon, since it will distort the sprayed area. The gelcoat must be allowed to reach its gel stage before spraying PVA.	
The PVA is sprayed with an airbrush (or Preval sprayer) in a thin layer, and heated to promote drying. Up to 3 thin coats of PVA are permissible. Dry with a heat gun after each layer. The repair will become very hard when completely cured. Allow it to cool.	
Sanding, Buffing and Polishing	
Start by wet sanding with 320 grit sandpaper. Then sand, in progression, using 400 and 600 grit sandpaper. This will remove the PVA.	

Apply a generous amount of rubbing compound on the repaired surface. Spread the compound over the surface.	
Polish by hand or using an electric buffer as described above at 2500 rpm.	
Multi-Tech Products offers additional information on catalyst ratios, color toning tips, and advanced gelcoat repair techniques. Please inquire.	

FOR ORDERS AND INQUIRIES CONTACT:

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www.multitechproducts.com