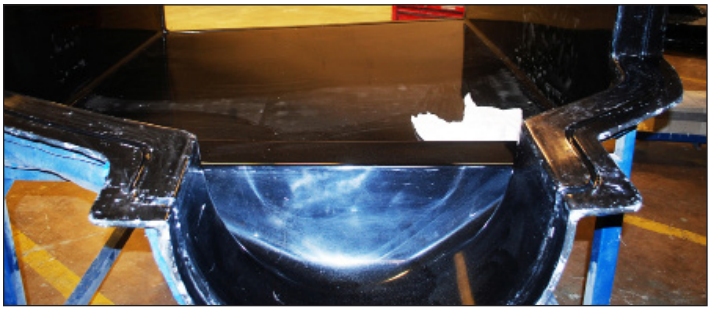
WHY RECOAT A MOLD?

Speed and economy. A mold can be recoated more quickly, and at less cost, than producing an entirely new mold.

Types of molds can be re-surfaced with Duratec:

1. Composite molds built with a tooling gelcoat surface
2. Epoxy molds built with an epoxy face coat.

Tooling gelcoat molds can be resurfaced to recover shine,



eliminate marks from repairs, and to improve vacuum integrity. Part repairs from mold marks are reduced or eliminated. Parts have improved gloss and appearance after the mold is resurfaced.

Epoxy molds are resurfaced to eliminate print, release more easily and to improve part cosmetics.
Duratec Mold Repair Putty is used to repair small areas of otherwise sound molds. The Mold Repair putty can be polished to a gloss equal to tooling gelcoat, and does not require a topcoat.

Preparing the mold (gelcoated mold process)

A successful mold resurfacing starts with preparation.

Mold release should be chemically stripped, then the mold should be sanded with 40 grit paper, followed by 80 grit. It is not necessary to remove all the gelcoat. The goal is to remove a consistent depth of gelcoat, to minimize the dimensional change to the mold.

Left Top Image:
Composites Mold in need of repair.

Right Top Image:
Chemically strip mold prior to sanding.

Right Middle Image:
Sand mold.

Right Bottom Image:
Sand mold with minimal dimensional change.

Use Duratec Mold Repair Putty to fill in any pits or porosity. Use a putty knife to force the putty into the gaps and cavities. Leave a slight mound to allow the putty to be sanded flat.

A word about cracks: If tooling gelcoat cracks due to excessive flexing of the mold, it will likely crack again in the same place after resurfacing. It is necessary to improve the bracing to prevent continued flex before resurfacing. Grind out the crack to the laminate, and use Duratec Mold Repair Putty to fill in the gap. Minor spider cracking can be recoated without grinding.

P.O. Box 415, Bloomington, CA 92316 · (USA) 800-977-0060 · (Outside USA) 909-546-1160
Fax: 909-546-1161 | Email: hawkeyesales@hawkeyeind.com | www.duratec1.com

HOW TO RECOAT A MOLD?

Wipe down the surface with a rag dampened with acetone. Tack cloths are not recommended.

Catalyst Recommendations:
We recommend a low Hydrogen Peroxide catalyst for the Duratec Vinyl Ester products, such as Norox 925H. Polyester products work well with a catalyst like Norox 925. Use 2% catalyst. Be aware of the gel time, and be sure the spray gun is cleaned before the Duratec sets up.

Priming with Duratec 707-002 Surface Primer or 1799-006 Vinyl Ester Primer.

The choice of primer is informed by several factors.

Q: How hot will the mold get during part production?

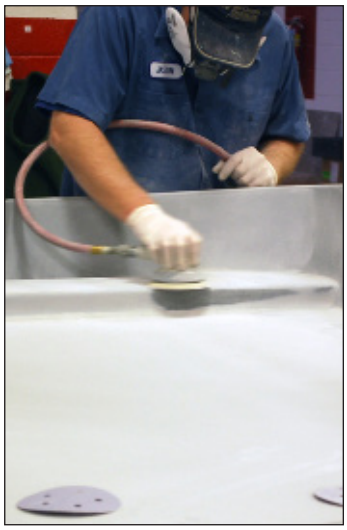
A: If above 165° F, use VE Primer.

- The VE Primer is mechanically tougher, providing improved crack resistance.
- The polyester Surface Primer is easier to sand.

Apply approximately 12 mils of primer. Allow to cure until it sands without plugging the sandpaper. We recommend a HVLP spray gun with a 2.2 mm tip, and approximately 40 psi. Use Duratec thinner or MEK Solvent to reduce viscosity, if necessary.

Adjust the spray gun to get a consistent fan. Work at a 90° angle to the part, at about 18 inch spray distance. Apply 3-5 mils per pass, alternating directions. After two passes, wait at least two minutes to allow the Duratec to release air and solvent. (Do not allow the Duratec to become tack-free between build passes.)

Sand the surface using between 120-220 grit. Remove a consistent amount of Duratec Primer. Sand until any orange peel is eliminated. Allow at least eight hours between the start of sanding and topcoating.



Topcoating with Duratec Vinyl Ester Topcoat: The Duratec Vinyl Ester Topcoat cures best above 68° F. Apply as follows:
Catalyze with 2% Norox 925H or similar catalyst.
Apply with an HVLP spray gun. A 1.8 mm tip works well. As before, work at a 90° angle, and about 45 cm distance. Apply 3 mils, then make another pass in the opposite direction. Wait a minimum of 2 minutes before applying more VE Topcoat. On vertical surfaces it will be necessary to allow more time between build coats. Build a minimum of 16-22 mils total film thickness.

Use the same process for poly ester topcoat.

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It is critical to set up the spray gun to minimize the air pressure required. Lower pressures will minimize orange peel. Thinning solvent is usually not necessary.

Even if the off-the-gun appearance is smooth and shiny we recommend sanding the Duratec VE Topcoat. Sanding opens the surface, allowing any trapped solvent to escape. Skipping the sanding process increases the risk of mold stick-ups.

Choose a fine grit sandpaper if the surface is free of orange peel. Past work has shown 320 grit to be a good choice. Sand with progressively finer grits. A progression of 320, 400, 600, 800, 1000 grit works well. Use a guide coat or sanding dye.

Wet sanding the final grits minimizes deep scratches. The Duratec Topcoats are unaffected by wet sanding.

Assure that at least eight hours passes from the start of sanding before compounding and polishing. High temperatures reduce the time required.

Compound the surface with a product that is designed for composites. We recommend Aqua Buff 1000, followed by Aqua Buff 2000. Be sure to use a water misting bottle to extend the Aqua Buff, and to keep the Vinyl Ester Topcoat cool. Bring the new mold into service.