

re-Gelcoating Your Boat

Re-gelcoating has a few differences to painting. Both require the same amount prep and fairing, but the application and finishing is quite different.

The principle difference between the two systems is in the final shoot.

For paint, the primer is sanded and double checked for porosity and other mars, (sags, runs, drips, dips, etc.), and then the topcoat is shot or rolled & tipped. This is usually done as one application. Once the paint has cured, you're done if using a LP topcoat such as Awlgrip or Sterling. For Imron and similar topcoats a final buffing and polishing may be required after about 1 month. The cured topcoat thickness of the painted surface will be around 10 mils.

Gelcoat will need to be heavier in thickness for a couple of reasons. Foremost is that gelcoat doesn't level out and cure the same way that paint does. Even with additives to thin the viscosity, a certain degree of texture, (orange peel), will be present after cure and has to be sanded, sealed, and polished.

Gelcoat also oxidizes at a much faster rate than topcoat paint systems and will require more compounding and polishing over the years. The key to the best longevity here is to maintain the surface frequently depending on the atmospheric conditions in your location and how the boat is protected from those conditions. A boat in the tropics with little or no protection from the direct sun will require a more frequent maintenance schedule than one in a more moderate climate kept in a covered boat shed.

Gelcoat is normally sprayed on in multiple coats to achieve the final cured thickness. You want enough thickness to allow for the initial sanding and polishing process, and still leave enough thickness to last a decade or more of maintenance compounding and polish before getting too thin.

The cured thickness you want prior to initial sanding is a minimum 30 mils & max 35 mils. This will allow for a 5 - 10 mil thickness reduction, leaving around 20 - 25 mils after polish. Any heavier than 25 mils and you'll run the risk of spider cracks in a few years. Gelcoat continues to cure and shrink through out its life span. Standard maintenance will reduce your thickness by about 2 - 3 mils a year if you do a semi annual compounding & polish on top side surfaces & 1 - 2 mils for an annual hull maintenance.

You should be able to spray 10 mils per application & allowing for shrinkage

in the initial cure, this would be 4 applications. The application schedule would be as follows:

1. 10 mils gelcoat - little or no additives* & no surfacing wax
2. 10 mils gelcoat - little or no additives* & no surfacing wax
3. 10 mils gelcoat - with additives* & surfacing wax

Allow the gelcoat to harden for several hours between coats. Coat 1 & 2 will be tacky after hardening to the point that you can't put much of an impression in it with your fingernail. Coat 3 should have no tack at all at the same point.

The surfacing wax will migrate to the surface as the curing cycle takes place and create a barrier to air. This is necessary for a tack free surface when cured so that you can sand.

An alternative to using surfacing wax in the gelcoat mix is to over spray the gelcoat with PVA, (polyvinyl alcohol). The problem with this method is getting the right amount of material misted onto the un-cured gelcoat to block the air out and in gauging just when to apply the PVA. Too much will adversely affect the gelcoat finish & cure, applied too soon will do the same. Not enough will allow air, leaving a tacky cure, too late will not block the air soon enough still leaving a tacky gelcoat cure.

PVA is misted on with a fine tipped gun at around 90 - 100 PSI. It must be applied at a point when the gelcoat has started gelling but hasn't hardened. The right amount of PVA is an unbroken film of less than 1 mill. The amount of PVA needed will also be more costly than the amount of surfacing wax needed.

* Gelcoat is quite viscous and almost impossible to spray without thinning it. The less you can thin it the better the gelcoat will be, so the use of a larger spray tip is required. I use both 2mm & 2.2 mm HVLP gravity feed cup guns for most of my heavy shoots. At this size the thinning is kept to a minimum.

Do not thin your gelcoat with acetone, MEK or lacquer thinner. Thinning with these materials can lead to an un-curable application that will aligator on the next shoot, destroying all the time and materials for both shoots, (been there, done that, got several T-shirts to prove it...). The best product to use, (manufactured by several resin companies), is called "patch booster". Patch booster is a high quality, low viscosity polyester resin with additives to minimize a tacky surface when cured. Depending on the tip size of your gun, 10% - 15% patch booster is all you may need. Try not to exceed 20% in the first three coats.

On the third coat add about 10% surfacing wax so that after the gelcoat cures it will be sandable. Allow at least 24 hours for final cure & before sanding. Sanding with 180 grit on the 3 coat will allow you to remove most, if not all of the orange peel texture and check your fairing.

The final gelcoat application will be done with a 1 mm tip gun, adding between 30% - 40% patch booster, & 10% surfacing wax. This application will be more like what you'd get shooting paint. Because of the lowered viscosity, watch out for sags and runs... Allow 2 or 3 minutes between overcoats to get your 10 mils. ie: spray about 5 mils over a given area and re-coat that area in 2 - 3 minutes.

Let the final application fully cure before sanding. Minimum 24 hours, 48 hours would be best... There should be very little texture present in the cured 4th application and you could start sanding with as fine a grit as 320 wet. Start with a finer grit first and back up to a coarser grit if necessary.

If you don't add enough surfacing wax the air will get to the gelcoat and it'll cure tacky and almost un-sandable. If you add too much the surface will have a waxy scum that will make sanding difficult. But too much surfacing wax is the lesser of the two evils. Remove the wax from the surface with naphtha followed with a soap and water wash. In lieu of naphtha, use a concentrated liquid laundry soap such as Wisk. Actually apply the soap directly to the surface, allow to stand for a couple of minutes and rinse well.

For the finest finish, you'll want to wet sand through 1,000 grit before compounding. Make sure that each grit has removed the scratches from the previous grit. Don't move to the next grit without thoroughly rinsing. A wet surface won't allow you to see fine sanding marks, so dry the surface and inspect it before moving to the next grit...

Once you've reached the end of your sanding, the 1,000 grit will have brought your surface up to a dull luster. A course rubbing compound shouldn't be necessary and you may be able move to a fine compound like 3M Finesse-it. Follow the Finesse-it with an automotive finish sealant such as Meguire's Machine Glaze. This is followed with a swirl remover such as 3M Perfect-it & a foam pad.

The resulting finish and the nature of the gelcoat will far exceed a painted surface in terms of longevity and repair ability, but you'll see why painting is the less expensive alternative. Gelcoat is less expensive in terms of material costs, but that is outweighed in terms of labor costs... Over a 20 year period the gelcoat becomes more cost effective, especially when compared with Awlgrip on topside surfaces since there would be at least 1 if

not more re-paint jobs needed.

Best regards,

Patrick

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