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GELCOAT REPAIRS

Gelcoat is a thickened polyester resin. Therefore to patch gelcoat you need gelcoat not paint, 5 minute epoxy or the such like. For the purposes of this instruction sheet we will make two assumptions:

1. The gelcoat is damaged but no structural damage has taken place ie. the damage may be down to the fibreglass laminate but has not penetrated the laminate.
2. You have already repaired the laminate and now require a gelcoat repair.

PREPARATION

Clean away excess dirt and grime from around the damage using 60 grit sandpaper. If there is oil contamination, this can be washed away with acetone and when dry re-sanded. If it is a small chip scrape the bottom of the area with the end of a blade and endeavour to sand down into the chip in preparation for the gelcoat to stick. It is important in any gelcoat repair that the laminate be dry. For instance if the repairs were to be on a boat hull, under water, it would want to be out of the water for at least a week and be protected from rain etc. Small cracks are a problem. They should be "V'd" out about 6mm (1/4") either side to form a groove about 12mm (1/2") wide, the point of which penetrates all the way down to the laminate. A rotary burr is ideal for this but it doesn't matter how you achieve it as long as you do!

Remember the gelcoat won't stick unless the base is freshly cut or sanded. Make sure any cracked edges or debris are removed, sand at least 6mm (1/4") around the edges onto the good gelcoat. If the repair is quite large, use a sanding pad (24 to 60 grit) on an electric drill or sander and grind the edges of the old laminate to ensure adhesion.

THE GELCOAT

Gelcoat comes in two basic types, spraying and brushing and unless you have sophisticated equipment forget spraying! Buy brushing gelcoat. Another complication is that all gelcoats are formulated to be applied to a mould and when cured leave a slightly tacky surface for the back up laminate of fibreglass and resin to adhere to. If we try and sand the gelcoat, the tacky surface loads up the sand paper making life difficult. You may go through a couple of sheets of wet and dry sandpaper until it starts to cut clean. If it is only a small repair this won't be a problem. However, if you are rubbing down a large area it is a pain in the neck. The way over this is to add a material called styrene wax to the last coat and this will stop the tacky finish and you will be able to sand it easily. Add the styrene wax at the ratio of 30 to 40 ml per kg of gelcoat.

FLOWCOAT

Flowcoat is a thinner already waxed version of Gelcoat sometimes used on Gelcoat repairs if minimal build up is required. Due to the wax already in the formulation if a second coat is required it will need to be re-sanded before adding the next coat.

APPLICATION OF GELCOAT

Gelcoat will build up on a vertical surface approx ¾ mm or about .030" so rarely can you make a repair with one coat. Depending on the thickness of the original gelcoat you may have to use up to 3 to 4 coats. Remember you may save a lot of sanding problems if you add styrene wax to the last coat. Make sure you build up the repaired area 'proud' or above the original surface. Mix the gelcoat by adding MEKP catalyst (ask for a catalyst chart). Paint on one coat using a small paint brush for small chips or a larger brush say 25mm (1") for bigger jobs. Make sure the brush is new or very clean (old paint will dissolve in the resin and end up on the job). Try and use the brush lightly and at a shallow angle – flowing the resin on using the tips of the bristles. If the resin starts to 'go off' or starts to 'roll up' stop at once and allow curing before further coats are applied.

One question that is often asked is, "I only want a teaspoon of Gelcoat to fix a scratch, and how do I measure the catalyst?"

If in fact you use a teaspoon (and they vary a little) add 3 drops of Catalyst and mix thoroughly.
This is not a very scientific approach to the problem, and you should satisfy yourself, that it gives you an acceptable result.

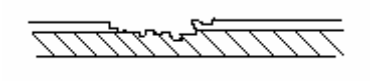
SANDING

After building up several coats to the desired thickness and after it has totally cured (24 hours), start sanding the surface back using a rubber block and wet and dry paper, 180 to 220 grit and plenty of water. When the repaired area just starts to meet the original gelcoat change to 320 grit wet and dry sand paper and continue to rub until you are cutting the original surface. Then change to 400 or 500 wet and dry for the final rub. You should then have a clean satin finish surface.
Buff the surface using a cutting compound (K&H Extra Cut) either by hand or machine. An electric drill or buff with a lamb's wool bonnet will be fine. A coat of wax (K&H PLP1) over the repair or indeed the whole surface will improve its weather ability.
Gelcoat colour matching is very difficult, white is usually O.K. The repaired area is usually a bit brighter than the original but it usually weathers back in time and if done properly is un-noticeable. Red and dark blue are notorious for fading and it is extremely difficult to get a perfect colour match. The preceding procedure does work but is very time consuming. Don't underestimate the time required.

<u>SAFETY</u>

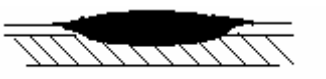
These materials are flammable and toxic. Good ventilation, cleanliness and tidiness in work areas are essential. Effective ventilation is necessary to avoid possible inhalation of fumes or dust. Suitable precautions should be taken at all times. Materials should be prevented from coming in contact with eyes or skin. Protective clothing should be worn to avoid any accidents. Eg. Goggles, gloves, overalls, respirators etc. If contact inadvertently occurs, the materials should be cleaned off immediately. If spillage or contamination should occur, the affected area must be cleaned up immediately.

1) Chipped Gelcoat



2) Sanded Out-Edges Beveled

3) Filled "Proud"



4) Sanded "Flush"