

THE USE OF GEL COAT, PIGMENTS AND FIRE FLAKE

Gel Coat

Gel coat is used as the first layer in moulding a good surface finish on the moulded surface. On top of it, inside the mould, layers of chopped strand mat (CSM) and resin are added to the required thickness and strength.

Gel coats are specifically formulated polyester resins with a flexible additive to improve their impact resistance against cracking and to produce a tough, resilient film on the moulding. In addition, special thixotropic agents are added so that they do not drain down the vertical surfaces of the moulds. As with the normal polyester resins they require the addition of catalyst and accelerator to harden them (usually they are pre-accelerated) and can be coloured with pigments.

Using Gel Coat

Pre-accelerated Gel Coat sets quickly once the catalyst is added (10 to 20 minutes depending on temperature) so all preparation work should be done properly beforehand. You will not have time to do anything else but brush the gel coat onto the mould once it is mixed.

Proceed as follows:

- Ensure the mould surface is properly treated with mould wax and release agent. (see moulding instructions)
- Estimate how much gel coat is required for the mould area – 1 square metre of mould surface requires 650 to 750grams of gel coat.
Eg. A boat of a hull of 100 square foot area: 11 sq ft = 1 square metre.
100 sq ft = 100/11 square metres = 9 square metres (approx)
Gel coat required = 9 x 0.650 grams = 5.850 kg = 6 kilograms (approx) rounded off.

NB - Always allow a little extra gel coat in your estimations in case of wastage and to avoid having to colour match new batches.

- Now add 10% (some pigments go up to 15%) by weight, of the polyester pigment paste of the desired colour (in 6kg of clear gel coat you will add 10% of pigment being 650 grams added). White gel coat can be bought ready mixed with the correct amount of white pigment (can be up to 15% of pigment loading).

If you are mixing more than one tin of gel coat (eg, 3 one kg tins) with pigment, cross mix the tins to ensure uniform colour. Gel coat of course can be used clear.

- Having prepared everything you are now ready to catalyse the gel coat and use it.

Gel coat is usually sold with the accelerator already added (pre-accelerated) and therefore it starts to harden the moment catalyst is added. A convenient quantity of gel coat to use per mix is 500g batches. Of course for small mouldings you may require less than this, but for big mouldings do not attempt to mix and use more than 1 kg at a time, because it will probably gel in the tin before you have time to brush it all onto the mould.

Add 2% catalyst to your chosen quantity of gel coat, stir very thoroughly and note the time. You will have between 5 and 10 minutes (longer in cold weather) to apply the gel to the mould.

- **Catalyst requirements:**
For 50 g gel coat add 1 g catalyst (approximately 20 drops)
For 100 g gel coat add 2 g catalyst (approximately 40 drops)

For 250 g gel coat add 5 g catalyst
For 500 g gel coat add 10 g catalyst
For 1 kg gel coat add 20 g catalyst

- Catalyst is sold in bottles of 10 g, 20 g, 100 g etc. ready weighed out. It is important to add the correct amount of catalyst.
- Gel coat can be bought in ready weighed quantities of 500g and 1kg. To measure smaller quantities use the Nivitex special measuring cups.
- Brush it on as evenly as possible keeping the motion to a medium pace right to left and left to right but not brushing too quickly. Try to maintain a quantity of 650 g per 1 sq meter as a guide is the ideal quantity to apply. Gel coat will add 0.5mm to 1mm of thickness to laminate.
- Do not worry about brush marks as they are on the lay up side and will be covered by the layers of chopped strand mat (CSM) and resin to follow.

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