

Gelcoat Application

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

Gelcoats are specially formulated polyester resins with a flexible additive to improve the impact resistance against cracking and to produce a tough, resilient film on the surface. In addition, special thixotropic agents are added so that they do not drain down the vertical surfaces of moulds. As with 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 GELCOAT

Pre-accelerated gelcoat sets quickly once the catalyst is added (5-10 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 gelcoat onto the mould once it is mixed.

Proceed as follows:-

- 1 Ensure the mould surface is properly treated with mould wax and release agent. (See moulding instructions)
- 2 Estimate how much gel coat is required for the mould area. 1 Square metre (11 sq. ft.) of mould surface requires 600 gms of gelcoat.
N.B. Always allow a little extra gelcoat in your estimates in case of wastage and to avoid having to colour match new batches.
- 3 Now add 8-10% by weight polyester pigment paste of the desired colour. (600 gms pigment in 6 kgs gelcoat etc.) White gelcoat can be bought ready mixed with the correct amount of white pigment. Pigment is often a very thick paste which is difficult to remove from the tin, but by stirring in a little gelcoat or resin it will pour out easily.
If you are mixing more than one tin of gelcoat (say 3 one Kg tins) with pigment, cross mix the tins to ensure uniform colour. Gelcoat can of course be used clear.
- 4 Having prepared everything you are now ready to catalyse the gelcoat and use it. Gelcoat is usually sold with the accelerator already added (pre-accelerated) and therefore it starts to harden the moment the catalyst is added.

A convenient quantity of gelcoat to use per mixing is 500 gm 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 1-2% catalyst to your chosen quantity of gelcoat, stir very thoroughly and note the time. You will have between 5 and 15 minutes (longer in cold weather) to apply the gelcoat to the mould.

Gelcoat and catalyst can be bought in a wide range of ready weighed quantities. To measure smaller quantities use special measuring cups.

Do not worry about brush marks as they are often on the lay up side and will be covered by the layers of chopped strand mat and resin to follow.

GELCOAT FAULTS

1 Pinholes

Possible Reasons:-

- Small air bubbles stirred into gelcoat
- Dust and dirt

2 Wrinkles in gel coat surface

Possible Reasons:-

- Application of another layer of resin before the gelcoat has had time to set properly
- Too little catalyst added resulting in slow or improper cure
- Gelcoat applied too thinly

3 Gelcoat does not set, sets in patches or remains sticky after removal from mould

Possible Reasons:-

- Insufficient Catalyst
- Damp mould
- Excessive pigment added
- Weather too cold

4 Bubbles under gel coat

Possible Reasons:-

- Chopped strand mat not stippled and rolled onto gelcoat properly, leaving air pockets
- Excessive exothermic heat due to very thick layers of resin and mat

PIGMENTS

Polyester pigment pastes are used for colouring gelcoats and normal polyester resins and are available in almost any colour. Usually they are opaque but special translucent pigments are available.

Pigments, especially when added in excess, often inhibit the curing rate of polyester resins. Black is the worst culprit.

When pigmented resins and gel coats are used in moulding it is usually unnecessary to spray paint the moulding and a more durable surface is achieved.

The recommended addition of pigment is as follows:-

In gelcoat up to 10% by weight

In resins up to 5% by weight