

Getting Started

One of the advantages of GRP is that you can start a project with very little in the way of tools, equipment and workshop facilities. Even for quite major projects, the only equipment required is a few brushes, laminating rollers and plastic buckets! This contrasts sharply with the amount (and cost!) of equipment needed for joinery, metal-work and other construction methods.

Materials

The following are the GRP materials normally required for most moulding or repair techniques:

Gelcoat:

A resin which forms the smooth outer surface of the finished laminate and is therefore applied first to the mould. It is thixotropic to prevent it draining from vertical surfaces.

Lay-Up Resin:

General purpose resin used for laying-up glassfibre - approx one kilo is needed per square metre of glassfibre mat (although this will vary according to the weight and type of glassfibre material). The same resin is ideal for general repair work.

Catalyst:

All resins, including Gelcoat, must be catalysed with hardener before use. Uncatalysed resin simply will not harden. Hardener (catalyst) is available as paste or liquid. (Catalyst, especially in liquid form, must be handled with special care - see section on "Precautions").

Pigments:

Although laminates can be painted, it is simpler to make them self-coloured, by adding pigment paste to the resin.

Glassfibre:

A variety of glassfibre materials (mats, rovings, fabrics, etc) are available to give a choice of strength-to-weight ratios. The most widely used is Chopped Strand Mat.

Fillers:

Inert filler powders are added to lay-up resin to produce a general purpose bodyfiller/stopper paste for repairs. Glass bubbles are excellent for boat repairs - most other fillers are slightly absorbent, and should not be used on boat hulls (or any item likely to be submerged). Fillers are rarely needed for laminating projects.

Release Agents:

Release agents are applied to the mould prior to laminating. They prevent the laminate adhering to the mould surface.



Styrene:

Used as a thinner, styrene is added to resin to make an initial primer when sheathing wooden structures.

Solution MW:

Reduces surface tackiness in certain resins - required for projects such as boat sheathing, repair patches, Ponds and Roof's etc.

Foam Sheet:

Polyurethane or PVC foam sheets are widely used for sandwich construction, or are cut and shaped for use as formers.

Acertone:

For removing uncured resin from brushes and tools - it can be harmful to the skin and should NOT be used as a hand cleanser. It evaporates quickly and should be kept in covered containers.

Barrier & Cleansing Creams:

To protect or clean the skin - Barrier Cream should be worn in conjunction with gloves when handling resins or glassfibre, and Cleansing Cream (NOT Brush Cleaner) should be used to remove resins, etc, from the skin.

TOOLS & ACCESSORIES:

Mixing Cups & Buckets:

For mixing resins, pigments, fillers, etc. Most plastic cups or buckets are ideal, except for polystyrene - it is dissolved by the resin!

Brushes and Rollers:

For applying resin. Use tools specifically made for GRP - conventional decorator's tools often use adhesives which are attacked by the resin.

Metal rollers:

Needed to consolidate the resin/glassfibre laminate.

Catalyst dispenser:

A purpose-made safety dispenser is essential for measuring out liquid catalyst. For small amounts, a measuring syringe can be used.

Plastic Gloves:

You are strongly advised to wear plastic gloves, as well as Barrier Cream, when handling resins or glassfibre.

Specialist Resins:

Apart from the standard gelcoat and lay-up resins, a wide variety of other resins are available for specialist uses such as making chemical-resistant or fire-retardant laminates, etc. For marine projects such as building boat hulls, Resin H (an isophthalic laminating resin) is particularly recommended as a high performance alternative to Resin A lay-up resin.

Specialist Reinforcements

Reinforcements other than glassfibre are sometimes used, especially for high-performance laminates. Typical examples are Kevlar, a synthetic aramid material which is even stronger than glassfibre, and has excellent impact resistance, and Carbon Fibre, which gives greatly increased rigidity to the laminate.

