

The application of Fibreglass 1

The application & equipment for applying fibreglass and resin in the Australian Composites Industry.

Some hints that may help you with the application of fibreglass.

Please keep in mind the majority of products supplied in the Composite industry are manufactured and supplied by ISO accredited companies where the products are monitored and tested throughout production by qualified chemists, engineers and technicians.

To get the best results from the products and the equipment follow the directions given by the manufacturer and or his qualified distributor.

Uniformed and unqualified applicators cost money, train your people in the correct methods of applying all Composite products to make profits.

Fibreglass

There have been over the years several different types of equipment used to deposit resin and fibreglass onto moulds.

I hope to cover all of these in this article

Information required

Product data sheet

Product material safety data sheet

Both items should be supplied by your supplier on request read them carefully before you start.

Know the m² to be covered, an example of coverage for chopped strand mat is 1 layer of 600g/m² with a resin ratio of 2¼ to 1 by weight should give a laminate thickness of 1.360mm. A normal resin ratio for Fabric is 1 to 1.

Brush and roller applications.

Equipment required.

“Before starting any project using liquid chemicals you must have the appropriate protective wear. New legislation does not allow for neglect in this area.”

Protective gloves

Protective eye wear

Overalls

Protective foot wear

PVC apron if required.

Good quality long bristle brush

Good quality medium pile roller

Good quality bristle, disc or paddle rollers to suite the application

Roller extension pole for large flat surfaces

Mixing container

Metric measure for catalyst

Scales for weighing resin and fibreglass

Flat stirring stick

Laminate thickness gauge

Acetone for cleaning

A good quality general purpose resin or higher quality if specified

A good quality MEKP



A good quality emulsion or powder bound chopped strand mat or/
A good quality glass cloth or other specialty fabric
Water waste containers for disposing of unused catalysed resin

Before any application of fibreglass occurs, make sure the mould has been correctly prepared with a good quality release system, popular systems are Nu-Ceara wax, Loctite Frekote and the K&H semi-permanent systems, as with all release systems they are made under strict control and to get the best results follow the manufacturers instructions on application.

A good even layer of gelcoat has been applied and allowed to cure correctly this will stop the gelcoat tripping or as some people call it wrinkling when the resin is applied to it.

When mixing resin and catalyst for any applications always follow the manufacturer's instructions,

Always use protective clothing, footwear and eye wear when using these chemicals.

Measure the area to be covered, cut and weigh the amount fibreglass to be applied, from this you can work out the amount of resin required, a normal ratio would be 2.5 parts by weight of resin, to 1 part by weight glass, make note of the ambient temperature and the material temperature, use the recommended MEKP grade, and use the recommended MEKP volume for the amount of resin to be used at the temperatures noted.

Do not mix too much material at one time as volume mixing will shorten the gel time of the mixed product, have stand by resin and catalyst ready to be mixed when coming to the end of the first mix, always mix resin and catalyst with a wide flat stirrer, do not mix with a mechanical mixer as you will induce air into the resin and it will be hard to roll out of the laminate. If you cannot mix the resin in a container with a flat bottom [square edge] transfer the mixed product into another container after mixing and restir this will make sure all the resin is catalysed before using.

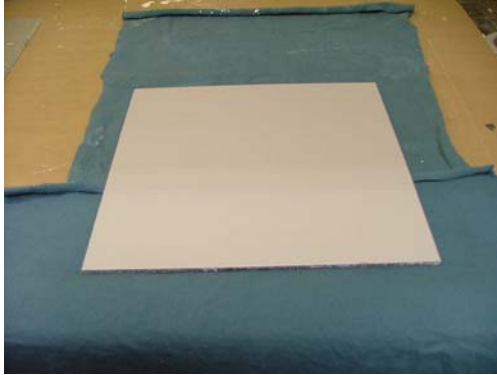
Apply resin liberally to the gelcoated surface with a lambs wool roller or brush, apply pre cut fibreglass mat and roll with lambs wool roller add more resin where required,

[please note there are two different finishes on the dry chopped strand mat a smooth side and a side with prominent fibres, always put the side with the prominent fibres into the wet resin, this will stop any pick up of the fibres onto the roller], allow to stand a few minutes for the resin to break down the glass binder this will give a easier roll out, roll out the laminate with the bristle or metal roller until there is no air evident in the laminate, air is in the form of bubbles or if the glass is not wet out correctly white strands of fibreglass.

With the application of mat for the best results it is better to draw the resin up through the mat rather than trying to force it down from the top, if you do this

what will happen in most cases the resin will film over and you will not be able to remove the air from the laminate easily?

Multi layers can be applied, always drawing resin up from below, where overlaps occur they are normally between 25mm and 50m.



Gelcoated Mould



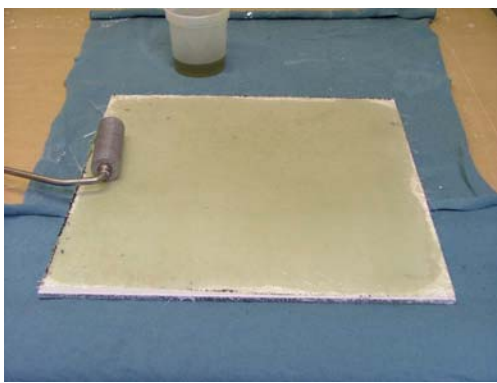
Wetting out back of gelcoat with resin



Apply precut glass into wet resin



Resin soaking up through glass



Complete roll out of glass, no bubbles or dry fibres are to be present

Please see the application of fibreglass 2 for spray applications.