

## Surface Preparation - GRP/FRP/Composites

### *Female Moulded GRP*

Fibreglass hulls and components are often made in a mould and therefore it follows that to release them from the female mould, a release agent of various types will have been used. These can vary from silicone-modified waxes, to hard pure waxes to water miscible polyvinyl alcohol release agents. In the case of some GRP/FRP composites the mould is a male mould and the release agent is therefore on the inside of the structure rather than the outside. In either case they must be removed before painting can commence and emulsifying with Fibreglass Surface Prep (YMA601) before thoroughly washing off with fresh water usually does this. A key indicator to thorough removal of release agent is that the surface will become fully wetted with water if all mould release agents has been removed. If release agents remain, water will remain in droplets on the surface. In this instance the process should be repeated.

### *Male Moulded FRP/Composite*

In many cases and in particular with the higher performance composite constructions, larger structures tend not to be built using a female mould, being built over frames and inverted before painting takes place. In this instance the outer polyester surface will not be coated with mould release agent but you will be presented with a surface rich polyester lay up. This will have to be removed and to do so will involve the use of strong detergent Super Cleaner (YMA620) and/or emulsifying agents.

It should be noted that these surfaces are more difficult to prepare than hulls removed from a mould and may take several applications and some abrasion to render the surface suitable for painting. Again a water-wetting test is a good indicator that the surface is satisfactory for painting. If unsatisfactory, water droplets will form as distinct from fully wetting out on an adequately prepared surface. If a nylon peel ply has been used to finish off these outer layers, simple removal of this layer will present a chemically clean, mechanically keyed surface to which an epoxy primer can be applied. A suitable period of time should be allowed between the completion of lamination and the application of the primer to ensure that the polyester or vinyl ester resin (does not apply to epoxy laminates) has cured sufficiently to avoid un-reacted styrene inhibiting the cure of the epoxy. Consult your International Technical Representative for advice on this.

As with all GRP structures the surface should be carefully checked for pinholing that should be filled before paint application takes place. Failure to do so will render the finish unsatisfactory. It is also advisable to check for air occlusions in the laminate surface and arrange for them to be cut out and filled after the hull is degreased and before paint applications.

Whilst initially this will not affect the finished appearance, air occlusions give way to blistering and/or craze cracking once the vessel is in service.

## Summary

For the moulded face of the substrate, the mould release agent must be thoroughly removed with Fibreglass Surface Prep (YMA601) and possibly sanding.

Any gelcoat surface should then be checked for:

- Pinholes - if present these will need to be filled prior to painting.
- Star Crazes - very difficult to detect and sometimes only show up after the first coat of paint has been applied. They need to be ground out and filled.
- Blisters - this may mean moisture content, so the hull should be checked for osmotic attack using a moisture meter. If osmosis is present the gelcoat will need to be removed and an osmosis treatment scheme applied.

All surfaces should be abraded to ensure a good mechanical key is present. Consult your IP Technical Representative for advice on this.



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