

# Swimming Pools Fibreglass Lining

## APPLICATION SHEET

### Suggestions for Lining Swimming Pools with G.R.P. Resin

Nivitex Fibreglass and Resins, pool resins reinforced with glassfibre are recommended for the lining of concrete and sand or Marbelite finished swimming pools. These linings offer an attractive finish that is strong and resistant to swimming pool water. The smooth, non-porous surface helps the control of algae growth. It is important that the lining is applied properly with the correct care taken to follow the recommended procedures to ensure that the lining performs well.

GRP swimming pool linings are normally divided into two categories:

## 1. Cosmetic Linings

This is for the replacement of worn marbelite finish or as a smooth coating on a rough or porous cement surface of a pool shell.

**For this application our suggestion is as follows:**

- a. A bonding resin or sealing resin is applied on the surface of approximately 600g/m<sup>2</sup>, NB - the surface must be porous.
- b. A laminated layer of Nivitex pool resin in conjunction with 450g/m<sup>2</sup> of chopped strand matt fibreglass in a ratio of 2.5kg of resin to 1kg of fibreglass (ratio 2.5:1).
- c. A layer of surfacing tissue using 250g of Nivitex pool resin per m<sup>2</sup>. (1m<sup>2</sup> of tissue = 250g of resin per m<sup>2</sup>)
- d. A coverage of approximately 600-800g/m<sup>2</sup> of Nivitex Poolcoat applied as a last layer which serves as a chemical resistant layer, choice of colour, a smooth and tack free finish.

## 2. Resurfacing a leaking pool which has plaster cracks but is otherwise in a sound condition

**For this application we suggest a lining that is more substantial than for a cosmetic lining, as follows:**

- a. A bonding resin or sealing resin is applied on the substrate of approximately 600g/m<sup>2</sup>. NB – the surface must be porous.
- b. A laminated layer of Nivitex pool resin in conjunction with 2 layers of 300g/m<sup>2</sup> of chopped strand matt fibreglass in a ratio of 2.5:1 resin to fibreglass.
- c. A layer of surfacing tissue using 250g/m<sup>2</sup> of Nivitex pool resins - applied on top of fibreglass chopped strand matt.
- d. A coverage of approximately 600-800g/m<sup>2</sup> of Nivitex Poolcoat is applied last for a chemical resistant layer, choice of colour, a smooth and tack free finish.

## Preparation

To ensure a homogenous covering with a glassfibre reinforced polyester laminate, start with a surface that is clean, dry and absorbent or porous. To achieve this, it is necessary to remove all paint, dust, loose plaster etc. from the surface of the concrete or plaster, as well as contamination of any kind, particularly oily deposits and algae.

The best way of achieving this is with light sand blasting, thorough wire brushing or sanding. The concrete or brick and plaster pool shell must now be thoroughly inspected for flaws, ie: cracks, bad plaster, crumbling brick and leaking areas. These defects must be made good and dried out before any attempt is made to apply the Fibreglass and Resin skin to the substrate. Repairs can be made

with conventional materials or accelerated, catalysed Nivitex – Resins , filled with clean dry sand. e.g. river sand, silica sand etc.

If the shell is badly cracked, the cause must be ascertained and corrected.

**MAKESHIFT REPAIRS TO SUCH DEFECTS IN INSUFFICIENTLY STABILISED GROUND, MOVING OR MADE-UP-GROUND ARE ONLY TEMPORARY AND RESULT IN LINING FAILURE.**

All wall-to-wall substrate corners should be filleted to form a minimum radius of 50mm. With new concrete or plaster it is essential to allow it to dry out completely, and then to wash down with a 5% Hydrochloric Acid solution to neutralize and pockets of strong alkaline concentrations which would attack the resin glass laminate from behind. The acid wash must be followed after an hour or so by a good wash down with clean water to remove the acid and by-products, and again be allowed to dry completely.

## Application

1. Apply a primer or seal coat of accelerated and catalysed, low viscosity Nivitex Resin to the surface being relined. This primer coat should be worked into the surface using approximately 600-800g/m<sup>2</sup> of resin. It is good practice to keep the floor clean and to put down walkways of planks or plastic sheets over the coat to keep it clean. Drips and loose glass debris should be cleaned up as they occur. As soon as this resin coat has gelled (setting), the next step should be undertaken.

2. The surface, once the primer coat is gelled, it is now ready to receive the glassfibre reinforced resin skin which is applied as follows: sufficient chopped strand matt to cover an area which can be worked within the geltime of the resin (impregnate the fibreglass with the resin and rolled out), is measured out and is cut to suit the working area.

3. An amount of Nivitex polyester resin adequate to properly wet-out the chopped strand mat (a ratio of 2.5:1 resin to glassfibre by mass is suggested) and catalysed with the correct Nivitex catalyst (MEKP-NA2). A coating of approximately two thirds of the quantity of resin is applied, by brush or roller, to the primed surface first. Giving you the resin penetration from below coming through to the surface.

4. The first chopped strand matt layer is now applied to the wetted area and rolled out with mohair rollers and the balance of the resin is applied to the matt with a mohair roller or a brush. The glass matt is then well consolidated and all air bubbles are removed with a suitable [aluminium laminating roller](#). Removing all the air bubbles from the laminate.

**IT IS IMPORTANT IN ALL CASES TO PUT A GOOD COAT OF RESIN DOWN BEFORE APPLYING THE MATT.**

This ensures a thorough wetting of the surface being covered and facilitates the removal of air pockets entrapped within the glass matt.

NB – The fibreglass matt is always pushed through the resin and not the resin pushed through the fibreglass. **THIS IS VERY IMPORTANT.**

5. Once a section of the area is covered, subsequent layers (if desired) are applied before the first layer has gelled. A layer of surfacing tissue is then laid overall as the last layer. Laminating of the glassfibre layers should be commenced on the vertical walls and finished off with the floor area being completed as the applicators withdraw. (The floor must be done last and worked from the deep end to shallow end.)

Overlaps must be a minimum of 50mm wide but the floor-to-wall joints should be a minimum of 250mm to 350mm wide as an overlap. An extra layer of glassfibre should be applied to the steps. All air must be rolled out as the covering continues, section by section.

Note – It is better to tear the fibreglass matt than to cut it , as when it is laid down there will be no line showing you where the joints are made.

6. It is best to have two teams working – one doing the first layer and the other doing the second and / or tissue layer. Both start on the side walls and progress down to the floor area so that the workers avoid walking on the wet laminate.

7. The operation continues until the covering is completed. Particular care must be taken to ensure that the top edge of the laminate is carried over the edge of the pool, and under the coping, to

prevent water seepage between the laminate and surface. Water seepage will cause blistering and consequential loosening of the fiberglass and resin lining. If it is not possible to remove the coping, a groove should be cut as high above the water level as possible, with an angle grinder.

This groove should preferably be of a dove-tail shape, not less than 25mm deep, so that the glass reinforcement and resin can be pushed in and secured. A further resin impregnated reinforcement of not less than 5 (60 ends) rovings is inserted into the groove and sealed using resin and silica or Calcium Carbonate powder (Kulu Powder) or a Fibreglass Milled Powder (Cotton Floks) powder mix. This provides good mechanical fixing as well as a waterproof seal. Care must be taken around drain outlets, lights, etc. to ensure a good seal from water loss.

8. Once the lining has been laid and has gelled, a final Nivitex Poolcoat Duly catalysed, applied to provide a resin-rich coating which will seal the surface of the laminate. This coat should be approximately 600-800g/m<sup>2</sup> in coverage. This final coat will provide you with your desired colour, a smooth tack-free finish which has a high wax content.

## General

Please note that accelerator and catalyst quantities must be varied to take into account the effect of ambient temperatures on the pot life (gel time or working time) of the resin. Direct sunlight will speed up the gel time and must be allowed for (NB: minimum catalyst % is 1% and maximum of 3%). Care should be taken to protect ungelled and freshly gelled surfaces from rain or dew. Contact with moisture at this stage can be the cause of white water marks on the surface of the Poolcoat.

It must be appreciated that the catalyst is the activator which cures the resin into a solid polymerized material. Thus, if the level of catalyst is too low the lining will not adequately cure and water, chemical and weather resistance will not be fully developed. Catalyst is applied in both resin and poolcoat. The minimum quantity of catalyst is 1% of the weight of the resin or poolcoat being used and the maximum is 3% of the weight of the resin or poolcoat being used.

## Important

**THE POOL MUST NOT BE FILLED WITH WATER UNTIL THE RESIN HAS FULLY CURED, AT LEAST 5 – 6 DAYS IN HOT WEATHER AND 7 – 10 DAYS IN COOL WEATHER.**

In areas where heaving or unstable ground conditions exist and the substrate is likely to crack, the use of a loose glass reinforced polyester resin liner will give good results.

**HOWEVER, THE LINING MUST BE DESIGNED TO CARRY THE LOADS IMPOSED ON IT.**

In this method a non-silicone wax is used to lightly coat the primed substrate and allowed to dry off.

All solvents must be allowed to evaporate out leaving only the wax deposit on the primed substrate to act as a non-stick surface. A layer of Nivitex Gelcoat has gelled, and is still tacky, then lining procedure as outlined above is followed.

**A SINGLE SKIN OF GLASSFIBRE CHOPPED STRAND MAT IS NOT CONSIDERED ADEQUATE FOR THIS TYPE OF LINING. AT LEAST 5 – 7 LAYERS IS RECOMMENDED , IN THIS SITUATION IT IS ALSO RECOMMENDED THAT AT LEAST 2 LAYERS ARE DONE WITH WOVEN FIBREGLASS FABRIC ( WOVEN ROVING ) 600gsm.**

## Material Safety

A material safety data sheet is available from us at the head office or from your Nivitex Representative. Make certain that you obtain a copy of this guide to the safe handling of unsaturated polyester resins and resins systems.

All brushes, tools and rollers can be cleaned with Acetone which is a highly flammable liquid and care must be taken when storing and used. Keep separate from MEKP catalyst.

## Warning

**CARE MUST BE TAKEN TO AVOID DIRECT MIXING OF ANY ORGANIC PEROXIDE (CATALYST) WITH METAL SOAPS, AMINE OR ANY OTHER POLYMERISATION ACCELERATOR OR PROMOTOR, AS VIOLENT DECOMPOSITION WILL RESULT!**

**READ AND UNDERSTAND THE MATERIAL SAFETY DATA SHEET BEFORE WORKING WITH THIS PRODUCT.**

**CATALYST IS A DANGEROUS MATERIAL AND MUST BE KEPT OUT OF THE REACH OF CHILDREN. IN THE EVENT OF AN ACCIDENT CONSULT YOUR PHYSICIAN IMMEDIATELY.**

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