AQUAGUARD® FIBRETECH POOL RESURFACING

Application Guide

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About This Guide

This guide has been created to provide general information on fibreglass and concrete pool relining using the **Aquaguard® Fibretech Pool Resurfacing Product Range.**

Due to the nature of the materials and expertise required it is strongly recommended that such work only be carried out by experienced applicators.

This guide should be used in conjunction with all the technical and safety data sheets for all the materials noted in this document.

Pool refurbishment images used throughout this guide are courtesy of:

- Coral Coast Composites (www.coralcoastcomposites.com.au)
- Pool Link (www.poollink.com.au)

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Safety Hints

Before you undertake any of the relining techniques discussed in this guide, carefully read these safety hints. The following list contains suggestions only and is not intended to be exhaustive of the steps which may be taken in connection with the techniques discussed in this Application Guide. Allnex does not accept any responsibility in connection with the safe handling of product once in the hands of a customer and customers should consult the supplier's Technical Data Sheet (TDS) and Safety Data Sheet (SDS) for information concerning correct handling procedures and other relevant information.

1. Most resins, solvents and catalysts are highly flammable. Keep stored in closed, original containers and in cool dark area.
2. Do not smoke when using flammable materials and avoid all naked flames, excessive heat and any other ignition sources.
3. To avoid any contamination, properly dispose of unused materials and containers.
4. Do not return unused material to original storage container.
5. Acetone, used for surface preparation and cleaning of equipment, is highly flammable. Read and follow the supplier's handling instructions carefully.
6. Never allow catalysts such as Methyl Ethyl Ketone Peroxide (MEKP), promoters and Acetone to come into direct contact with each other as the mixture can be highly explosive.
7. Catalysts and solvents can damage skin and eyes. Wear close-fitting eye protection, PVC gloves and protective clothing at all times as recommended by suppliers.
8. Avoid working in damp, humid or draughty conditions.
9. Ensure your work area is well ventilated; open doors and windows, where possible.
10. Never use oral suction methods for measuring, such as a pipette.
11. Refer to the supplier's SDS for correct handling procedures before use. For specific product properties please refer to the TDS for each product.

Safety Eyewear	Safety Gloves	Safety mask	Protective boots	Overalls
				

Recommended Tools for Installation

- Long bristle brush
- Medium-to-long pile roller
- Bristle, disc or paddle rollers
- Mixing containers
- Metric measure for catalyst
- Metric scale for weighing resin & glass
- Jiffy mixers
- Laminate thickness gauge
- Acetone for cleaning

Diagram is for illustration purposes only. Refer to our Equipment Catalogue for a full list of items available.

Contact your allnex Sales Representative for our **Equipment Catalogue.**

Material Quantities Guide

Below are the recommended usage quantities for the component products in the **Aquaguard® Fibretech Pool Resurfacing Product Range.**

Material	Approximate Quantity
Ultratec® vinyl ester primer (concrete pools only)	0.4 kg/m²
Laminate layer • Glass (chopped strand mat) • Ultratec® VE tie layer resin	1mm 0.45 kg/m² 0.9 kg/m²
Fibretech fillcoat	0.625 – 0.75 kg/m²
Aquagard® Fibretech topcoat	0.625 – 0.75 kg/m²

Calculation Guide to determine the right amount of materials to use is available from your local allnex sales representatives.

Aquaguard® Fibretech Pool Resurfacing Product Range

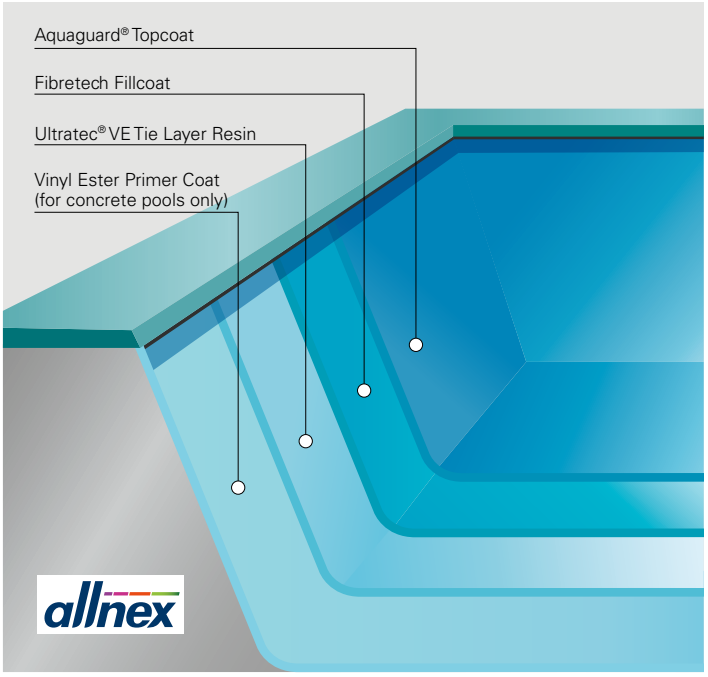
The Aquaguard® Fibretech Pool Resurfacing Product Range consists of four unique products each specifically designed to give superior performance in pool relining. The range has been designed to include products that can be used for both fibreglass and concrete residential pool refurbishment. Substitution of any of these materials with inferior products will compromise the finished quality of the job and is likely to result in premature failure leading to additional cost in rectification and repair. Always insist on using genuine Aquaguard® Fibretech Pool Resurfacing materials.

1. **Ultratec® Vinyl Ester Primer**
   For concrete pools only, to seal the surface and provide excellent adhesion of subsequent layers. Particularly important for concrete or porous substrates.

2. **Ultratec® Vinyl Ester Tie Layer Resin**
   Provides a corrosion barrier to protect the pool from osmosis.

3. **Fibretech Vinyl Ester Fillcoat**
   Secondary corrosion barrier providing additional opacity and prevention against fibre wicking.

4. **Aquaguard® Fibretech Topcoat**
   Final cosmetic layer formulated to give optimal performance and colour retention.



- For recommended product use please refer to the relining procedures outlined in this document.
- For specific product properties please refer to the technical data sheets.

Aquaguard® Fibretech Topcoats

Aquaguard® Fibretech Topcoats have been specifically designed for use in the refurbishment of swimming pools. These were developed following an extensive research and development program carried out over a number of years to formulate a superior class of chemical and highly UV resistant topcoats for swimming pool applications.

Features	Benefits
Excellent flow and levelling properties	Easier to control film thickness
Rapid air release	Minimises air entrapment
Excellent water resistance	Elimination of blisters/osmosis
Good sag resistance	Provides a more consistent film thickness
Excellent UV and weathering resistance	Improved article longevity
Excellent resistance to fading and bleaching that can be caused by pool chemicals	Improved cosmetic lifespan
Gloss retention	Superior appearance of article during its service life
High degree of flexibility and general toughness	Improved resilience which reduces the occurrences of cracking

Aquaguard® Fibretech Topcoats are available in selected colours, which have been specifically tested at active chlorine levels much higher than the relevant Australian Standard (AS1838). These topcoats are also available in a number of seasonal grades to allow for climatic variations. Please contact your local allnex Composites Technical Representative for further information.

Product Usage and Guidelines

Fibreglass materials are tough, but like any other products they can deteriorate over time. Fortunately, composites products can be easily rejuvenated if proper procedures are followed. The relining procedures recommended here are based on accepted industry practices and when followed should achieve satisfactory results. It should be noted that the quality of the finished part is largely dependent on surface preparation, ambient conditions and the application methods employed. It is equally important to follow the supplier's TDS and SDS for the mixing and application of materials needed.

The following table contains a summary of some of the important things you need to be aware of before you commence any refurbishment.

<table>
<tr><th>Area</th><th>Details</th></tr>
<tr><td>Temperature and cure</td><td>Because handling and physical properties of materials are always affected by temperature, providing an exact cure time for products is difficult. In warmer months curing may take much less time while in cooler months longer cure times will apply. For this reason, it is recommended that relined pools are not filled with water for a minimum of 7 days. This is important as relined areas which are not fully cured before being exposed to water will become white in colour.

The most reliable test for assessing the topcoat cure is the acetone test. Simply rub the topcoat surface with a cloth soaked in acetone, if any colour comes off on the cloth the topcoat is under-cured.

Barcol hardness testing will not give an accurate reading on topcoat films since the needle will pass straight through the cosmetic layer and will largely reflect the state of cure of the laminate underneath.

Note: application is not recommended in temperatures below 15C°.</td></tr>
<tr><td>Catalyst type and level</td><td>Always refer to the supplier's TDS and SDS before changing your catalyst type or levels. The use of excessive levels of catalyst can cause discolouration and shrinkage, and the use of low levels can reduce the rate of cure. As a general rule the following catalyst levels should be used:

<table><tr><th>Product</th><th>Catalyst Level</th><th>Recommended Catalyst</th></tr><tr><td>VE Primer Coat</td><td>2.0%</td><td>Curox M-100, Norox 925H or equivalent</td></tr><tr><td>VE Tie Layer Resin</td><td>1.5%</td><td>Curox M-100, Norox 925H or equivalent</td></tr><tr><td>Fillcoat</td><td>2.0%</td><td>Curox M-100, Norox 925H or equivalent</td></tr><tr><td>Topcoat</td><td>2.0%</td><td>Curox M-200, Norox 9, Butanox M-50 or equivalent</td></tr></table>
Note: always check the TDS first for the appropriate catalyst to use as well as for the recommended catalyst level.</td></tr>
<tr><td>Topcoat thickness</td><td>Using less than the recommended film thickness noted on the product technical datasheet will result in slower than expected cure. This may prevent the product achieving a full cure and result in premature failure once the pool is in use.</td></tr>
</table>

Images courtesy of Coral Coast Composites and Pool Link

Area	Details
Direct sunlight	The relining process should always be carried out under shaded conditions (use of appropriate shading material recommended to avoid exposure to direct sunlight) and left to cure without exposure to direct sunlight to avoid variation in surface cure.
Keep it dry	The pool surface must be completely dry before starting the procedure. Water returns, jets and drain areas should also be inspected to ensure that there is no leakage as it is common for water in pipes to trickle from exposed outflows. Pools also should remain covered until the repairs are fully cured. This is important as moisture on the surface can retard cure and prevent proper adhesion. If water falls on the repaired surface before full cure is achieved it will cause the cosmetic surface to become white in colour.
Styrene entrapment	Styrene monomer vapour is heavier than air and will accumulate in the deeper areas forming a blanket directly over the topcoat. This build-up will actually inhibit the cure of the topcoat in these areas. Therefore, covers should be supported well above the level of the edge beam to allow sufficient cross ventilation and airflow.
Wall support	Fibreglass pools can hold 20 or 30 tonnes of water. Draining a pool without bracing the walls can result in the pool walls collapsing. For an empty pool to maintain its shape, the soil surrounding the pool must be pushed back with the same amount of force.
Water table	If the water table is high then draining the pool can allow it to “float”. When drained, pools should be weighted to prevent movement. If a pool is not weighted, the soil surrounding the pool can flow in under the base resulting in an uneven floor or the pool edge beam being higher than the surrounding paving.
Batch-to-batch variation	We recommend only using one batch of topcoat per pool to minimise any potential colour variation.
Product contaminants / modifications	Adding or combining other materials or contaminants with the Aquaguard® products can cause variations in surface properties and performance. Adding anything to the topcoat may void any warranty from the manufacturer.

If you experience any other problems not discussed in this guide or require further information, please contact an allnex Composites Sales Representative in your respective state.

Procedure for Relining Fibreglass Swimming Pools

The following procedure describes one method for re-lining in-ground fibreglass swimming pools. This procedure does not imply any warranty against or indemnity for damage arising from failure of the swimming pool surface layer, tie layer, or laminate due to blistering, delamination, black spot, and iron hydroxide depositing or fading. The relining of in-ground fibreglass swimming pools is generally necessary when the original coating has been sufficiently eroded over the years due to either chemical or physical forces, or both. Allnex does not have any scientific evidence to suggest that one particular method of relining swimming pools is better than another. However, based on 20 years of performance in the field, the following procedure has consistently given a superior result.

To get the best results from the products and the equipment follow the directions provided by the manufacturer and supplier. Read the technical and safety data sheets carefully before starting any project with composite products.

Before and whilst any repair procedure is carried out, always make sure you observe all relevant workshop safety standards. Current regulations are such that you are responsible for the safety of your operators.

Procedure

In order to achieve the best result, it is recommended that the full system is applied in one day. The preferred sequence is to laminate in the morning and topcoat in the late afternoon. For the desired bonding to occur between the various layers it is important that each step in the process is carried out in a timely manner, whilst always ensuring that each layer has properly cured.

1. The existing surface finish must be completely ground back to bare laminate.
2. The condition of the laminate behind the original gelcoat should be assessed and documented by inspecting the surface for chemical attack, black spot, dry fibre craters, or any other defects. Defects must be repaired with a suitable chemical/water resistant filler material such as SPV500 before starting the relining procedure. Note: if there are any areas where the laminate needs to be removed or repaired it must be reconstructed with equal laminate thickness.
3. Remove the dust and wipe the surface clean with acetone to ensure proper adhesion of the Fibretech products to the substrate. Allow the surface to completely dry before proceeding.
4. Add the catalyst to the Ultratec® VE Tie Layer resin as noted in the TDS. Allow any fizzing or foaming of the resin to subside before proceeding.
5. Apply a resin rich laminate using Ultratec® VE Tie Layer Resin and 0.45kg/m^2 Chopped Strand Mat at a minimum resin to glass ratio of 2:1.
6. Consolidate resin into the glass fibre thoroughly. As a final layer, the use of a glass fibre tissue can assist in achieving a more uniform surface.
7. Once the laminate is sufficiently cured, sand off sharp fibres and repair any air bubbles.
8. Add the catalyst to the Fibretech Fillcoat as noted in the TDS.
9. Apply 0.5 – 0.6mm wet film thickness onto the entire surface area of the pool. Never apply to damp or dust coated surface, or when dew is depositing.

10. All resin laminates and Filler/Topcoat applications must be applied out of direct sunlight as noted in the 'Product Usage and Guidelines' section. When applying Filler and Topcoats, keep a wet edge at all times to avoid overlap lines in the final finish. Use a medium-to-long nap application roller or spray if permitted by relevant authorities. Note: use of spray application will always be subject to local regulatory requirements and it is your responsibility to ensure that you are aware of and comply with these at all times. Allnex will not be held responsible for your compliance or non-compliance in this regard.

11. Allow to reach proper cure. Sand off any defects.

12. Add the catalyst to the Aquaguard® Fibretech Topcoat as noted in the TDS.

13. Repeat steps 9 and 10.

14. Allow the finished lining to cure for a minimum of 7 days. Longer cure times will be required during the cooler months and at no stage during the curing cycle should the topcoat be exposed to moisture.

15. After 5 days inspect the topcoat to ensure there has been a proper cure. The topcoat should be 'acetone' rub tested at random throughout the pool. Pay special attention to step areas and any areas which appear to have irregular gloss compared to surrounding areas.

16. If colour is able to be removed by the acetone dampened cloth then the topcoat is not cured and generally will never cure.

17. Where lack of cure is detected, remove all undercured layers, wipe with acetone and reapply all the removed layers.

18. Water may be added after a minimum of 7 days and once it has been established that the topcoat surface has reached full cure.

Note:

Where possible the wall laminate should not be left as a sharp edge and should be tucked under the coping. Tiling around the waterline should be considered.

Images courtesy of Coral Coast Composites



Procedure for Relining Concrete Swimming Pools

The following procedure describes one method for relining in-ground residential concrete swimming pools. This procedure does not imply any warranty against or indemnity for damage arising from failure of the swimming pool surface layer, tie layer, or laminate due to blistering, delamination, black spot and iron hydroxide depositing or fading.

The relining of in-ground residential concrete swimming pools is generally necessary when the original coating has been sufficiently eroded over the years, due to either chemical or physical forces, or both. Of course, there is no reason why a brand new concrete swimming pool cannot be lined using the Aquaguard® Fibretech Pool Resurfacing Product Range. Allnex does not have any scientific evidence to suggest that one particular method of relining concrete swimming pools is better than another. However, based on 20 years of performance in the field, the following procedure has consistently given a superior result.

To get the best results from the products and the equipment follow the directions provided by the manufacturer and supplier. Read the technical and safety data sheets carefully before starting any project with composite products. Before and whilst any repair procedure is carried out, always make sure you observe all relevant workshop safety standards. Current regulations are such that you are responsible for the safety of your operators.

Procedure

In order to achieve the best result, it is recommended that the full system is applied in one day. The preferred sequence is to laminate in the morning and topcoat in the late afternoon. For the desired bonding to occur between the various layers it is important that each step in the process is carried out in a timely manner, whilst always ensuring that each layer is has properly cured. Remove any former/residual coating to expose the original concrete.

1. Neutralise the concrete by washing it with a 10% solution of Hydrochloric Acid.
   Caution: when diluting concentrated acids NEVER add the water to the acid, ALWAYS add the acid to the water whilst stirring, and always wear suitable protective clothing and safety glasses.

2. Wash the pool with water to remove the neutralised acid and any other residues. Allow the concrete to dry thoroughly.

3. Once the concrete is completely dry, apply a coat 0.4mm of Ultratec® Vinyl Ester Primer. Add the catalyst to the product as noted in the TDS. Allow any fizzing or foaming of the resin to subside before proceeding. The Vinyl Ester Primer acts as a binder for the concrete and also provides a good physical and chemical bond for the laminate layers. The concrete must be thoroughly wetted with the Vinyl Ester Primer. Depending on absorption properties of the concrete, a second coat may be necessary.

4. Once properly cured, apply a resin rich laminate using Ultratech® VE Tie Layer Resin and 0.45kg/m^2 Chopped Strand Mat at a minimum resin to glass ratio of 2:1. Add the catalyst to the Ultratech® VE Tie Layer Resin as noted in the TDS. Allow any fizzing or foaming of the resin to subside before proceeding.

5. Consolidate resin into the glass fibre thoroughly. As a final layer, the use of a glass fibre tissue can assist in achieving a more uniform surface.

6. Adequate curing of the Vinyl Ester laminate layer is essential in order to achieve satisfactory chemical resistant properties. When the laminate has reached sufficient cure, the top surface should be sanded using 60 grit discs to provide good physical bonding. Remove any dust before proceeding.

7. Add the catalyst to the Fibretech Fillcoat as noted in the TDS.

8. Apply 0.5 – 0.6mm wet film thickness onto the entire surface area of the pool. Never apply to damp or dust coated surface, or when dew is depositing.

9. Only apply Fibretech Fillcoat out of direct sunlight as noted in the 'Product Usage and Guidelines' section. Keep a wet edge at all times to avoid overlap lines in the final finish. Use a medium-to-long nap application roller or spray if permitted by relevant authorities. Note: use of spray application will always be subject to local regulatory requirements and it is your responsibility to ensure that you are aware of and comply with these at all times. Allnex will not be held responsible for your compliance or non-compliance in this regard.

10. Add the recommended catalyst to the Aquaguard® Fibretech Topcoat as noted in the TDS.

11. Repeat steps 9 and 10.

12. Allow the finished lining to cure for a minimum of 7 days. Longer cure times will be required during the cooler months and at no stage during the curing cycle should the topcoat be exposed to moisture.

13. After 5 days inspect the topcoat to ensure there has been a proper cure. The topcoat should be 'acetone' rub tested at random throughout the pool. Pay special attention to step areas and any areas which appear to have irregular gloss compared to surrounding areas.

14. If colour is able to be removed by the acetone dampened cloth then the topcoat is not cured and generally will never cure.

15. Where lack of cure is detected, remove all undercured layers, wipe with acetone and reapply all the removed layers.

16. Water may be added after a minimum of 7 days and once it has been established that the topcoat surface has reached full cure.

Images courtesy of Coral Coast Composites and Pool Link



Troubleshooting

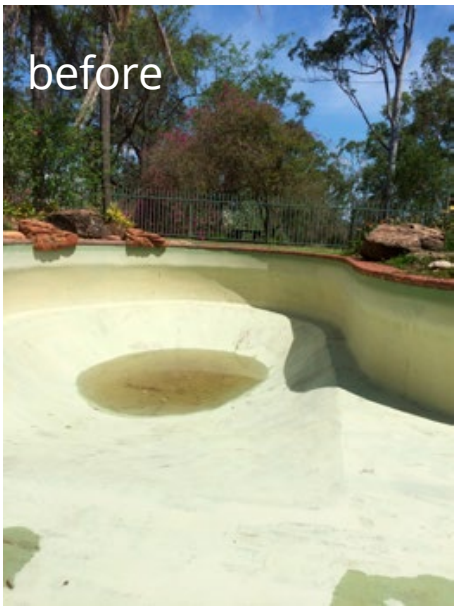
Issues which may occur following the filling of the pool:

Issue	Reason	Remediation
Rapid whitening following water exposure	Undercure in topcoats	Remove the undercured layers and reapply following the above guidelines
Pinhole blistering in laminate	• Air entrapment in the laminate • Dry fibres • Original laminate was not carefully examined for defects	Remove the affected areas and reapply following the above guidelines
Pinhole blistering in fillcoat and topcoat	• Topcoat is too thinly applied or undercured • Air entrapment in the top layers	Remove the affected areas and reapply following the guidelines above

Other Surfaces

The Aquaguard® Fibretech Pool Resurfacing Product Range is intended for use primarily in relation to concrete and fibreglass pool surfaces. However, the **Aquaguard® Fibretech Pool Resurfacing Product Range** can also be used to reline pools which have other pool surface finishes (such as pebblecrete, tiles, etc.) but only if the existing pool surface finish (tiles, pebblecrete, etc.) is completely removed before application.

Images courtesy of Pool Link



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