cotec
SURFACE PREPARATION GUIDE

Fibreglass Pool Osmosis

Additional information about Osmosis and how to deal with it.

Osmosis (hydrolytic degradation of permanently immersed fibreglass laminates) is a common issue with some if not many fibreglass pools (and boats). The contributing factors to these processes are: poor wetting of fibres, air entrapment in fibre bundles, hydrolysis of sizing, hydrolysis of resin matrix etc. So it can be closely related to the manufacturing techniques and the materials used along with the skill of the fibreglass operators at the time of construction. Osmosis issues, if any, tend to show up 10 -15 years after construction though may show up sooner or later. It is evidenced by blisters or bubbles on the inside surface of the pool. There may be only a few or many. They may be localised or all over the inside pool surface.
Such blisters can be a serious problem if left unattended. At some point, your pool may need extensive repair, including gel coat removal and a new fibreglass liner.

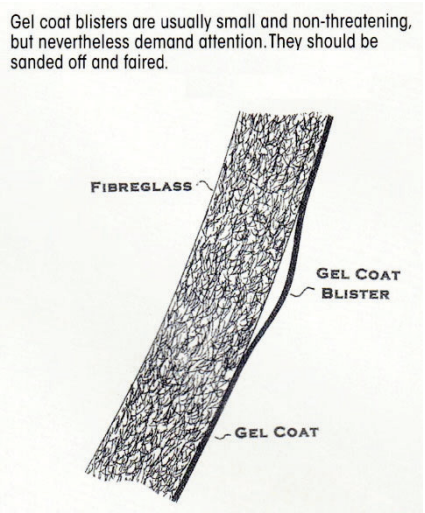
There are two types of blisters: Gel coat and Interlaminate.

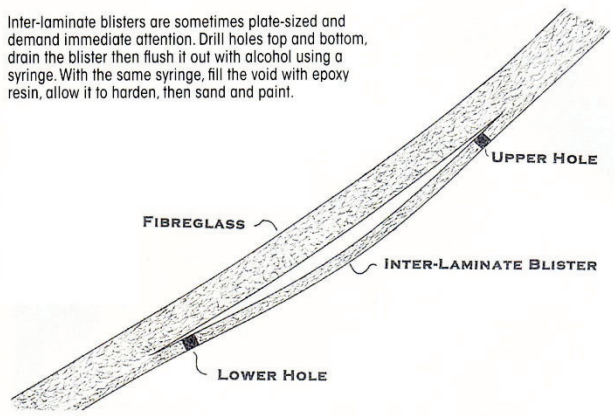
Gel Coat Blisters: are relatively benign being the gel coat lifting up in small blisters from the surface, leaving sound fibreglass underneath. They may have black spot associated with them if broken tops.

Interlaminate Blisters: is where osmotic pressure within the fibreglass is forcing the laminates apart creating large blisters, up to 200 mm across and maybe 20 mm high.

Please refer to the Epotec Application Notes in conjunction with this added information.

Repair of Gel Coat Blisters: are best identified immediately after the pool is emptied of water. Don't wait, even an hour or two, fewer blisters may be seen because blisters often deflate over time. The damage is there, just more difficult to identify. Sand off the tops and out about 20 – 40 mm beyond them and allow to dry out. Wash out and allow to dry. Mix and apply by palette knife epoxy filler, forcing into the space and leaving an even finish. When sanding the rest of the fibreglass surfaces, sand (Hand or orbital) these too to create a smooth transition. Usually #80 grit followed by #120 – 160 grit is the best way. (Refer to diagram on right)





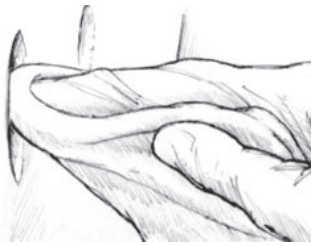
Repair Interlaminate Blisters: these can usually be seen best in side lighting as the dome may be only a few mm, but the width can be 200 mm or more. Then mark (felt pen) and if not too many drill a 3 – 4 mm hole top and bottom to allow the fluid inside to drain out. Flush out with Methylated Spirits (use a cheap syringe of same size as drilled hole) and repeat until reasonably sure it's clean inside. Allow to dry for a warm sunny day. Then mix and apply an epoxy resin mix (Araldite) into the bottom hole and when it ALMOST comes out the top hole, seal with duct tape. Remove syringe and immediately seal bottom hole too with a pre cut wooden plug. Allow to cure (24hrs) before removing tape and plug. Fill any indentions with epoxy mortar. Sand carefully to blend in, BUT do not sand it out as for the small gel coat blisters. It's now full of inert epoxy and will be in a stable state for quite some time if done well.

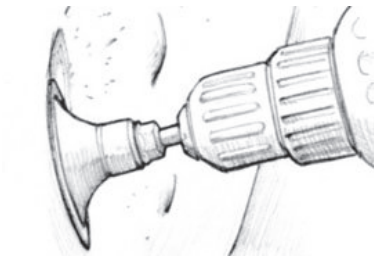
If a lot of these types of blisters then consider having a new fibreglass liner placed in your pool. Discuss with a competent fibreglass contractor.

over

As an alternative you may consider grinding out the blisters completely. See the GEMCO System.

- Use an angle grinder or drill with #40 – 60 grit flexible sanding disc (or a suitable grinding disc such as 3M's Rolock™ 50mm) to remove all blisters and surrounding areas to about 25 -30 mm beyond blisters. You will cut into the fibreglass itself and there may be water visible. Be careful not to go right through but to a depth of about 5 mm or less.





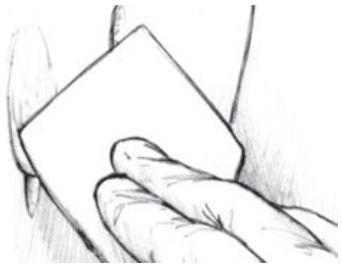
- Wipe out such areas with paper towels soaked in rubbing isopropyl) alcohol, to help remove water. Don't over use towels but replace with new. Allow to dry for as long as possible, several dry windy days at least. Cover Pool with tarp if wet weather expected

- To fill holes use 10oz fibreglass cloth and GEMREZ GP EPOXY.
  6 Kg - B pack (slow) (See you regional GEMCO or COTEC Distributor) Sand back once cured.
- Then fill remaining voids with same to fill up to nearby surfaces.

- Also can add either GEMCO fillers, to fill out mix into a paste consistency. Follow guide lines in the GEMCO Specification sheet or TDS.

- Once cured, sand back flush with adjoining areas.

- Now you are ready to mix and apply Epotec NT epoxy coating.



NOTE: Wear dust filters, eye protection etc when carrying out this work.

SUMMARY:

Depending on the factors that cause blisters in your particular pool, one of the following may apply:

- Repairing isolated blisters may solve your problem.
- Repairing isolated blisters from time to time and keeping an eye on further developments, if any.
- Repairing isolated blisters may only slow the advancement of blisters and postpone an extensive repair.
- Have a whole new Fibreglass liner installed in your pool as a long term answer.

See our web site for more information: www.cotec.co.nz/pools

Or call us for assistance.