

Osmosis in Fibreglass Pools:

A Plain-English Guide for Australian Pool Owners

Introduction



Fibreglass pools have been popular in Australia for many decades because they are smooth, attractive, relatively quick to install, and generally easier to maintain than some older concrete pool finishes. However, some older fibreglass pools can develop a problem commonly called **osmosis**.

For many pool owners, osmosis first appears as small bubbles, blisters, black spots, raised lumps, or weeping marks on the pool surface.

Sometimes these defects are only cosmetic at first. In other cases, they indicate a deeper issue that has been developing inside the fibreglass laminate for years.

The important thing to understand is this: **osmosis is not just a surface stain. It is a moisture-related breakdown process inside the fibreglass structure.**

What Is Osmosis in a Fibreglass Pool?

In simple terms, osmosis occurs when water slowly finds its way through the gelcoat or surface layer of a fibreglass pool and reacts with materials inside the laminate.

A fibreglass pool is made from layers. These usually include:

- A visible smooth gelcoat surface
- Resin-rich layers behind the gelcoat
- Fibreglass reinforcement
- Structural laminate layers
- Sometimes older backing materials depending on the manufacturing era

Over time, water can pass through microscopic pores, cracks, weak spots, or poorly cured areas in the surface. Once moisture gets inside, it can react with uncured chemicals, soluble residues, or older resin components within the laminate.

This can create small pockets of liquid under pressure. These pockets eventually form **blisters**. Often the blisters are soft and when broken “smelly” water comes out.

Why Older Pools Are More Prone to Osmosis

Older fibreglass pools were often built using earlier resin and gelcoat technology. Many were good pools for their time, but the materials and manufacturing controls were not always as advanced as they are today.

Older pools may have:

- Less chemically resistant gelcoats
- Resin systems more prone to water absorption
- Poorer cure control during manufacture
- Air voids or dry areas in the laminate
- Less consistent quality control
- Decades of exposure to water chemistry swings



Modern fibreglass pool manufacturing has improved significantly, especially with better vinyl ester barrier layers, improved gelcoats, better moulding practices, and tighter quality control. That said, no fibreglass pool is completely immune if the laminate, surface, or water conditions are poor enough over time.

What Is Inside an Osmosis Blister?

When an osmosis blister is opened, it often contains a small amount of liquid. This liquid may have a sharp, sour, chemical, or vinegar-like smell.

This is because the water trapped inside the blister has reacted with materials in the resin system. The liquid may contain acidic by-products, dissolved chemicals, and degraded resin compounds. It is not just ordinary pool water sitting under the surface.

This liquid creates pressure inside the blister. As pressure builds, the blister becomes more visible. Eventually, it may crack, weep, stain, or collapse.

What Does Osmosis Look Like?

Osmosis can appear in several ways, including:

- Small raised bubbles or pimples
- Larger blisters under the gelcoat
- Black or dark spots
- Small craters after blisters break
- Weeping marks or discoloured spots
- Rough patches where the surface has failed
- Groups of defects in certain areas of the pool



Sometimes only a few spots are visible. However, what you see on the surface may only be the defects that have finally reached the outside. More moisture activity may still be developing deeper in the laminate, out of sight.

Why Surface Repairs Do Not Always Stop the Problem

HITCHINS TECHNOLOGIES PTY LTD ACN 119 448 501, PO Box 3186, Bonnells Bay NSW 2264, Australia , 1300 8879 20 , support@poolpaint.com.au
All information is given in good faith but without warranty. No liability will be accepted for any damage, loss or patent infringement from use of this information.
This information does not constitute a specification and is subject to modification in the course of further development.

This is one of the most important points for pool owners to understand.

When a visible blister is repaired, the repair usually deals only with the defect that has reached the surface. The technician may grind or dig out the damaged area, dry it, fill it with an epoxy filler, sand it smooth, and then paint or coat over it.

That can make the pool look much better, and it may be a sensible short-term repair. But it does not necessarily remove all the moisture, chemical breakdown, or hidden blister formation deeper within the pool shell.

In other words, **you can repair what you can see, but you cannot easily repair what is still developing unseen inside the laminate.**

That is why osmosis can return later, sometimes in the same area and sometimes in completely new areas.

Does Osmosis Affect the Pool Structure?

In many cases, early osmosis is mainly a surface or near-surface problem. The pool may look ugly, but the shell may still be structurally sound.

However, if osmosis is widespread and has been active for many years, it can weaken parts of the laminate. Moisture can travel through layers, break down resin, create separation between layers, and reduce the strength of affected areas.

Not every blister means the pool is structurally unsafe, but widespread blistering should be taken seriously. A proper inspection is important, especially if there are soft areas, cracking, delamination, major surface breakdown, or repeated blistering after previous repairs.

Repair Options

1. Temporary Spot Repairs

For small numbers of blisters, a practical repair may include:

- Draining the pool
- Grinding or cutting out the blister
- Washing and drying the area
- Filling with epoxy filler
- Sanding smooth
- Painting or coating the repaired area



This can improve appearance and slow local deterioration, but it should be seen as a **patch repair**, not a full cure.

2. Larger Surface Refurbishment

If the pool has many defects, a broader resurfacing may be considered. This may involve grinding back larger areas, repairing defects, and applying a new coating system.

This can improve the look of the pool, but if deeper osmosis activity remains in the laminate, future defects may still appear.

3. New Fibreglass Liner Inside the Pool

For a longer-term solution, some pools may be suitable for a new fibreglass lining system installed inside the existing shell.

This approach creates a new internal waterproof barrier and a fresh structural surface over the old, affected pool. When properly prepared and installed, it can be a much stronger solution than chasing individual blisters one by one.

However, preparation is critical. The old surface must be properly ground, cleaned, dried, repaired, and prepared before the new lining system is applied.

Summary

Osmosis in fibreglass pools is a moisture-related breakdown process that usually starts beneath the visible surface. It is common in some older fibreglass pools, especially those made with older materials or exposed to years of poor water balance.

Blisters often contain acidic liquid formed by water reacting with chemicals inside the resin. While visible blisters can be repaired, hidden osmosis may continue developing inside the laminate for years before it reaches the surface.

Small repairs can improve appearance and buy time. Larger resurfacing may help, but for badly affected pools, a properly installed new fibreglass liner may offer a more durable long-term solution.

For Australian pool owners, the best first step is a proper inspection by someone who understands fibreglass pool construction, not just surface cosmetics. Osmosis is not always a disaster, but it does need to be understood clearly before money is spent on repairs.

