



Performance Through
Technology and Service

Date Issued	Aug 2021
Replaces	

INFO SHEET

Common Causes for Irregularities and Finish Defects - Fluoropolymer

Optimum Hardness and Curing not achieved

There is an optimum level of hardness and curing that needs to be reached to achieve maximum wear resistance and performance. Too soft can cause accelerated scuff and wear and can also cause discoloration in the film. The film may even appear milky when submerged in water.

The surface hardness and cure can be tested, see end of this document, to be sure.

Improper Mixing

- The chemical reaction will be out of balance.
- Gloss Variation: may have a patchy appearance due to the different gloss levels.
- Change in visual appearance in gloss and colour.

Incorrect Hardener Ratio:

Fluoropolymer coatings are two pack coatings meaning they need 2 parts (Part A – Base & Part B – Hardener) combined together to cure. If there is insufficient Part B mixed with Part A, the coating may only air dry on the surface and still have uncured paint underneath.

Under catalysed Films:

- May appear air dry but will not fully cure underneath
- May appear soft and gummy

Over Catalysed Films:

Over catalysed films are due to a mixing ratio imbalance where there is too much Part B added to Part A.

Check By:

- Brittle surface
- Edge bonding issues
- Premature gloss and colour reduction
- Poor resistance to chemicals
- Solvent Boil. This is concentrated small bubbles appearing on the surface of the coating that will not disappear.

Blistering and Delamination:

Blistering and Delamination is not normally a problem with the coating itself, rather it is more do to with the surface it is being applied to or what it comes into contact with.

Causes of delamination include:

- Surface contamination
- Improper preparation
- Pinholes in the substrate allowing hydrostatic pressure to occur. This is where moisture behind the substrate needs to escape, this builds up pressure and finally it breaks through the weakest point, often via a pinhole or crack in the substrate that is not properly sealed by the primer.
- Coating is not allowed to achieve an optimum curing level before coming into contact with water or pool chemicals.

Tannin Staining:

Tannins are naturally-occurring particles in plants, flowers, trees and other organic materials. They play an integral role in the flavouring and colouring of wine, and herbs containing tannins have been used in the process of tanning hides for centuries. Tannin colouring can cause trouble in swimming pools. When leaves, branches and other organic materials fall into the water and settle on the stairs, walls, or floor of the pool, they can leave black or rust-coloured stains. Tannin stains will dissolve under an intensive chlorine treatment.

Low Temperature

Fluoropolymer coatings are formulated for application at temperatures as low as 10 °C and to 30 °C. Temperatures below 10°C will slow the rate of the chemical reaction between the Base and the Hardener. The evaporation of the solvents in the base and hardener will also evaporate slowly. High temperatures mean you need to add more solvent as you apply the product.

High Humidity, Moisture Condensation, Stagnant Air

Fluoropolymers are designed for application up to a maximum 85%RH. High humidity and/or the presence of moisture may cause discoloration, gloss level variation and poor uniformity of appearance.

Insufficient Curing of Water-Based Primers or Fillers

If primers and fillers are not fully cured before the application of the Fluoropolymer, this may result in poor adhesion between the two coatings, blistering, gloss and colour variation due to the migration of uncured properties and/or chemicals in the primer.

Discolouration & Gloss Variation

Fluoropolymers are designed to have superior gloss and colour retention compared to Epoxies and other conventional coatings. Common causes of Discolouration and Gloss Variation include:

- Improper mixing
- Under catalysed film
- Not allowing the paint to cure long enough before submersing, usually 7-14 days.
- Adding chemicals to the water too soon; usually earlier than 7-14 days.
- Painting in poor weather conditions.

Mixing; make sure you are using the full container of Part B with ALL of Part A. If you need to use less than a full pack, then use correct measuring techniques. Not guessing. Use measuring cups, not a measuring ruler. Follow directions on Application Notes for more details.

Is it cured? To determine if cured enough to fill pool:

Get a clean white cloth or paper towel and make it into a pad about the size of \$2 coin. Well saturate the pad with IPA (Iso Propyl Alcohol. From chemist) Rub the wetted area over the dry paint, in a up down motion (say 50 – 100 mm, stroke) and remove. Any paint - colour on the pad indicates it is NOT cured and no water should be in the pool. Repeat, if necessary, until no color is on the wetted pad surface.