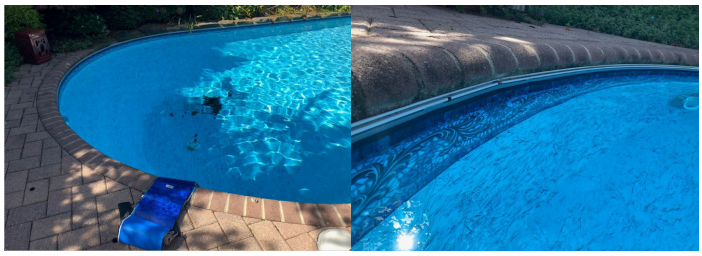
CFFA CHEMICAL FABRICS & FILM ASSOCIATION, INC.
VINYL POOL LINERS

Bleaching by chlorine

Each liner is manufactured to withstand the extremes of the outdoors and to maintain its appearance over the expected lifetime. To ensure this appearance, we are using specifically formulated vinyl liners with the addition of a clear transparent topcoat. However, the appearance can be compromised, if correct chemical and physical maintenance procedures are not practiced. The major cause for premature fading is chemical attack, for example extreme chlorine doses with free chlorine levels far above the recommended of 1.0 – 3.0 ppm.

Most people think “There is no way that my chlorine levels are that high, I would feel it and I couldn’t swim in my pool”. Noone would swim in their pool after super chlorinating/shocking the pool due to the higher chlorine levels. Most homeowners are relating over chlorinating with failure modes like the complete fading of the liner under the waterline. This normally occurs if the chlorine level is far above the recommended range for a long period of time. This may not be readily recognized by the homeowner. This could also be caused by improperly shocking, opening or closing a Pool.

Tip: Make sure to measure and properly maintain chlorine levels



Tip: But the truth is, most fading is not homogeneous, but actually a spot fading.

Some chlorine sources such as trichlorisocyanurate, so called “Tri-Chlor”, are known for its very high available chlorine content of approximately 90%. The pH of Tri-Chlor is low with a level of 2.8-3.5 in a 1% solution. It also has low solubility or it is slow to dissolve. Tri-Chlor, typically in puck form, can settle down to the bottom of the pool. It can result in direct contact with the liner and that can cause a totally bleached out appearance. This can happen within a short time frame of 6-24 hours. Of all the chlorine sources, Tri-Chlor is the most critical one in terms of spot bleaching.

But spot bleaching can also occur, if undissolved particles from any other slow dissolving sanitizers are able to settle down in the pool and remain there for an extended period of time. The impact of other chlorine sources are not as severe, however they can bleach the liner under specific circumstances.

! You must avoid local accumulation of sanitizers in direct contact with the liner. The accumulations can create much higher chlorine levels than what exists in the rest of the pool. Typical affected areas are the floor, at the deep ends or corners of the pool.

Bleaching by chlorine

Random section of a pool

Settled chlorine › “Micro pool” with different pH and chlorine level

Some possible causes for localized accumulation can be:

- Insufficient water circulation/dead spots
- Pump has been turned off for too long
- Chemical dispensing floaters containing sanitizer agents resting in one area
- Shock product hasn’t been pre dissolved prior to introduction to the pool
- Liner hasn’t been sufficiently brushed after shock treatment, opening or closing
- Insufficient brushing and vacuuming of liner after treatment

No matter which type of chlorine source (daily sanitizer or shock product), once in direct contact with the liner, it has the potential to bleach the liner in this spot due to the extreme water chemistry levels.

Printed vinyl liners with base colors such as grey and dark blues have excellent resistance to chlorine bleaching. Light blue vinyl liners, however, are more susceptible to bleaching or loss of color.

The purpose of this paper is to inform the homeowner about stains and its effect. There are many companies in the pool industries specialized on not only identifying and treating of any kind of stain but also giving you detailed guidelines of how to prevent/eliminate any staining issues in future.

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