



YELLOW STAINING

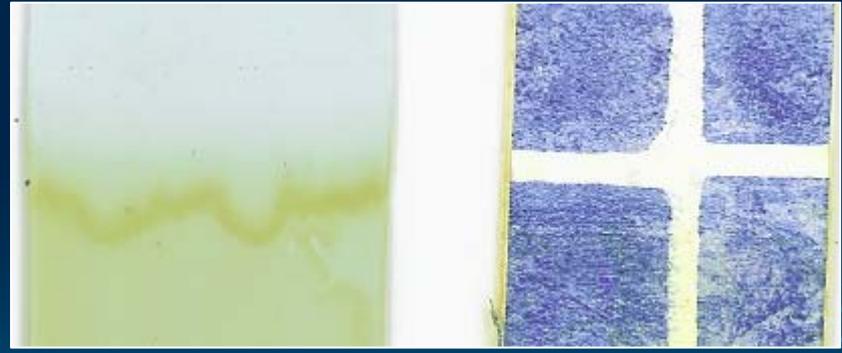
AT THE WATER LINE

During the swimming pool season of 2006, swimming pool membrane manufacturers became aware that yellow staining of the water line has become an increasing problem. These stains did not correspond in any way with the usual pollution of the water line, which is generally grey/black/brown in colour, and which is not too difficult to remove if cleaning is carried out on a regular basis. Grey staining is generally found on the downwind side of the pool.

The yellow stains have a very distinctive colour; they appear in less than two days and they are very difficult to clean. Several pool owners have stated that the stains appeared after people using sun cream had made use of the pool. Renolit laboratory tests have shown that the most probable cause of the staining is a reaction between sun cream and copper :



Liners that have come in contact with sun cream and chlorinated water



Liners that have come in contact with sun cream and chlorinated water that contains copper

Lacquered membranes are less easily stained than unlacquered products, but there is still a possibility of some staining.

The yellow stains dissolve in highly chlorinated water. So, theoretically it is possible to remove the stains by raising the water level above the stains and shock chlorinating the swimming pool water. In practice the stains dissolve rather slowly, so it can take several weeks before the stains have disappeared, and the high chlorine level could also attack the swimming pool membrane.

The yellow stains also dissolve in strong solvents, such as ethyl acetate. This solvent can only be used to remove the yellow staining on plain colours. Ethyl acetate cannot be used on printed products as this solvent will remove the print.

A better method is to avoid staining by not using copper-based water treatment products. This is also the suggestion of the french standard NF T 54-804T1 Plastiques - Membranes armées en poly(chlorure de vinyle) plastifié (PVC-P) pour piscines enterrées - Guide pour la pose, le remplacement, l'exploitation et l'entretien (E : Plastics — Plasticized poly(vinyl chloride) (PVC-P) reinforced membranes for inground swimming pools — Guidance for the installation, change, exploitation and maintenance) :

***AVERTISSEMENT — L'utilisation de sulfate de cuivre est interdite
(ATTENTION - The use of copper sulfate is prohibited)***

This standard has been endorsed by the major manufacturers of swimming pool membranes (Renolit, DLW, Sika,..) and several distributors and installers.

Nowadays, in many European countries, copper sulphate is rarely used. As an algicide, it has been replaced by quaternary ammonium compounds, which have the added advantage of not colouring the swimmer's hair.

In France, the major manufacturers of swimming pool chemicals offer products without copper sulphate specially for liner pools. See :

<http://www.bayrol.com/en/swimming-pool-water-care-tips/pool-cleaning-care/index.html>

http://www.archwaterproducts.eu/contenu_hth.php?id_famille=91

Liner pools have no rough surfaces, such as the grouted joints in ceramic pools, therefore a liner pool does not really need an algicide : it is perfectly possible to maintain good water quality with only the use of chlorine tablets.