

## Swimming Pool Applications



The Hydrosmart treatment removes scales, bio-films and scum lines taking with it the algae, moulds, fungi and bacteria that live on it. There is an overall improvement in the health of the environment and less cleaning and maintenance. The bathers experience less irritations and the water feels softer and is much clearer.

The treatment neutralises chemical reactions maintaining the level of free chlorine and reducing the amount of chlorine dosing needed thereby reducing the bad odours involved. Scale and corrosion are eliminated leaving motors, pumps and heaters free to work more efficiently using less energy and requiring less maintenance and replacement.

### **Pathogen Control** **Chlorine Dosing Problems**

Whenever you chlorine dose highly mineralised or poor quality water a large proportion of that chlorine, will react with the pathogens, minerals and human load, (hair, skin, sweat, body fluids, and faecal matter), to form chlorides and chloramines. Chlorides do not kill bacteria but they do cause a lot of reaction problems with other elements in the water. Only free chlorine actually kills bacteria.

Consequently only a small portion of the chemical dosing stays as free chlorine and the remainder just loads up the chemical content of the water. This in turn irritates or burns the eyes and skin, bleaches expensive swimming costumes and unbalances the pH so that even more chemicals have to be added to balance the pH.

## **Reduces Chlorine Dosing**

With the Hydrosmart treatment dampening down the ability of the minerals and other matter to react the **chlorine is prevented from synthesising** into chlorides and chloramines. It **stays as free chlorine** and so much less is required to maintain the same chlorine levels and kill the same amount of bacteria.

The savings in chlorine dosing can be anywhere between 15% and 80%, depending on the set up and the water quality. If other chemicals are used to balance the pH so that Sodium Hyper chlorite treatment is effective, then these pH balancing chemicals are no longer needed.

## **Reduces Bacteria**

By removing scale, biofilms, and therefore algae and molds, the growing base for many of the bacteria are removed. The resulting reduction in bacteria means still less chlorine is required to keep the pool bacteria free.

## **Stabilises pH Balance**

Data from a swimming pool trial in Singapore, showed that with Hydrosmart treatment, the pH remains almost stable with daily variances that never exceed 0.1. With conventional chemical pool treatment, pH readings jump about all over the place by as much as 0.8 and a constant balancing act takes place as various chemicals are dosed in an attempt to keep the pH within the range needed for the Sodium Hyper chlorite to convert to free chlorine. None of these chemicals control pathogens, but they do add significantly to the chemical content of the pool water and to the operational costs of the facility.

## **Reduces Odour**

The odour we associate with chlorinated pools comes mainly from the reaction between the chlorine and the minerals and organic matter, (pathogens, hair, skin and body fluids), as it converts into chlorides and chloramines. This is particularly relevant for heated indoor swimming pools where the odours can be quite pervasive.

These reactions are inhibited by the Hydrosmart resonance frequencies stopping the production of the gases that cause the odour. Add to this the reduction in actual chlorine added and the smell of chlorine progressively dissipates.

## **Removes & prevents scale**

The frequencies remain active in the water for many days and in the case of swimming pools where the body of water is circulating, the frequencies are renewed constantly. This allows the frequencies to loosen the bonds of any scale or other deposits that have built up in the pool's circulating, filtration and heating system.

As a result any equipment in contact with the treated water will be progressively de-scaled and will now be operating in a non-corrosive, scale free, soft water environment, which results in a wide range of maintenance benefits. Pool heating systems become scale free and use much less energy and hot water systems need their thermostats turned down. It is important to back-flush the filters at regular intervals during the first eight weeks of treatment, so that the removed matter can be taken out of the pool circulation. Thereafter back-flushing can be reduced to much longer periods as the filters will not block up as easily.

## **Removes Algae and Fungal Formations**

Algae and most fungal formations require a particle size greater than 8 to 10 microns to attach to and breed or feed on. As Hydrosmart treatment results in particles being reduced below 4 microns the algae progressively dies off and comes away from the grouting and the other surfaces to which

it has attached itself. The dead algae is then easily removed by the pool cleaning system or gets taken out of circulation by the filtration system.

By softening the water and de-scaling all the tiled surfaces, fungal formations such as shower mould, athlete's foot, dandruff and other fungal related skin conditions progressively dissipate along with the substrates via which they are passed on to other pool users. It is therefore important to treat shower water as well as the pool circulation.

## **Better Health**

Removing all scale and bio-films removes the growing base for algae, fungi and moulds and ultimately bacteria, resulting in significant health benefits.

Shower mould soon disappears taking with it the airborne spores that can trigger asthma attacks. There is also a significant reduction in fungal related skin problems such as dandruff and athlete's foot. All tiles and surfaces stay cleaner including saunas and showers. The water in general is healthier as there are fewer chemicals in it and all pipes, pumps, filters, heaters and equipment are de-scaled clearing out the algae, fungi, moulds and bacteria.

Most importantly the results will show up in the swimmers. Their hair will be soft, won't smell of Chlorine, will not discolour or become matted, their skin won't crawl, their eyes won't go red and their swimming costumes won't bleach.

## **Clearer Water**

There is a progressive improvement in water clarity that accompanies the application of Hydrosmart treatment. This is due entirely to the reduction in particle size of the minerals, chemicals and organic matter that is present in the pool water. Large particles absorb or scatter light, making the water look murky, whereas tiny particles allow the light to pass through largely uninterrupted. A further improvement in water clarity occurs if algae is present and is removed by the treatment.

## **Soft Water**

Hard water is due more to the size of the mineral crystals than the TDS levels, by which water hardness is normally measured. By breaking down the large mineral and chemical compounds such as chlorides, carbonates and bicarbonates, into tiny particles, the treated flow assumes all the attributes of chemically softened water without any of its running costs or environmental consequences.

Not only is the water pleasant to swim in, it produces better lathering and excellent washing and rinsing results with hair feeling softer as the particles are so small that they easily rinse out. There is also a noticeable improvement in taste and water clarity.

## **Prevents Corrosion**

Highly mineralised water accelerates the corrosive process attacking pipes, pumps, valves and any other equipment.

Corrosion is due to chemical reactivity between metals and aggressive chemical compounds in the water supply. Once the water is treated the Hydrosmart resonance frequencies inhibit chemical interactions (e.g. the oxidization of iron), and corrosion ceases.

This significantly prolongs the life and reduces the maintenance of your pumps, filters, pool heaters, hot water service, coffee machines etc. Pumps no longer corrode or cavitate, which minimizes vibration, improves their efficiency and puts less stress on the shaft bearings.

## Cost Savings

- Because no scale is forming on the elements or heating vessels they heat more efficiently and need to be turned down.
- With no scale or corrosion all motors and pumps work more efficiently using less energy.
- This leads to less maintenance or replacement of equipment.
- Significantly less chlorine is required.
- No pH chemicals are needed.
- The heart of the Hydrosmart system is a microprocessor and uses less than \$10 energy per annum.

## Applications:

### Next Generation health clubs

Next Generation Club Adelaide has been using Hydrosmart since 2001 on all its pools, saunas, spas and shower blocks with not only high clarity and water quality but they also require little or no tile cleaning or algae control in general. The centre now uses 15% lower chlorine dosing reducing the chlorine smell and adding to the overall health of the facility.

“Sauna maintenance has been low since installing the Hydrosmart with no scale issues or algae issues in the steam sauna, which the manufacturers say, is due to the steam carrying the frequencies reducing algal growth problems and making for healthier tiles, grout, steam and odour control.”

### Grand Hyatt

The Grand Hyatt Nusa Dua Hotel in Bali conducted a controlled trial on their swimming pool in which measurements of the chlorine dosing were recorded against twice daily free chlorine readings.

Prior to the application of Hydrosmart treatment 8 kg per day of chemicals were being used to maintain the required free chlorine levels. Over a 6 week period the dosing was reduced to below 2 kg per day and during the entire period the free chlorine levels were maintained at or above the recommended levels. The water is soft, the algae have gone, the tiles are easy to clean and there is no chlorine smell.

### Hard Rock Hotel

The Hard Rock Hotel in Bali installed Hydrosmart in 2003 and since then have reported that there are far less bather complaints and a general lowering of maintenance issues. The pools now use less chlorine for dosing.

### Club Med

Club Med in Bali also notices the decrease in complaints from their bathers and that they are using far less chlorine.

## Summary

The treatment, by removing scales, bio-films, scum lines etc also takes with it the algae, moulds, fungi and therefore the bacteria which in a swim centre not only improves the health of the environment and lowers cleaning and maintenance but also reduces the bad odours involved. The now softened water feels beautiful and is much clearer.

Neutralising the chemical reactions maintains more free chlorine, reducing chlorine dosing, whilst stabilizing the pH balance. With no scale or corrosion all motors, pumps and heaters work more efficiently using less energy and require less maintenance and replacement.