

Effective Sanitation

Swimming pools offer a great means of exercise as well as being a wonderful entertainment site for family and friends. They can also improve the appearance and value of a property but most of all improve your lifestyle. A simple and regular regimen will keep the water sparkling clean and maintain equipment in optimal working condition

This Involves:

- Maintaining water balance through use of appropriate chemicals
- **Enhancing the quality and appearance of the water**
- Protection of the structure and machinery of the pool
- **Using effective and continuous sanitation**
- **Oxidising (shocking) regularly to eliminate bather waste**
- Maintaining water balance through effective filtration and circulation
- **Inhibiting the growth of algae**

Getting The Terminology Right - Oxidation vs. Sanitation

• Sanitation

‘To sanitize means to reduce microorganisms of public health importance to levels considered safe, based on established parameters, without adversely affecting either the quality of the product or its safety.’

• Oxidation

In swimming pools, oxidation is a term broadly used for removing contaminants that are both living like bacteria and fungi as well as non-living like bather waste.

Oxidation ‘burns off’ non-living organics like sweat, mucous, body oils, urine, saliva, and bather products like cosmetics, sunscreen, lotions, deodorants, etc as well as killing living organisms.

Pool sanitization kills living microorganisms and contaminants, while oxidation handles non-living contaminants as well.

Using Effective And Continuous Sanitation

Micro-organisms and algae thrive and multiply in wet, warm conditions. Swimming pools can provide those conditions from the combination of warm water, bather load (e.g. body oils, perspiration, skin cells and bacteria), rainwater, dust and contaminants such as insects. Use of effective sanitising products in the water provides a safe and comfortable environment. Chlorine levels should be 1.5-3 ppm. A background level of sanitiser is needed alongside a weekly oxidiser to “burn off” nitrogenous substances. Extra specific products are needed to prevent algal growth, particularly in the summer. Poor sanitation not only results in a cloudy, possibly green, dull uninviting pool but can result in unsafe water with infections in the ears, on the skin or gastrointestinal tract possible.

Possible Results of Inadequate Sanitation in Pools



Background Sanitation

Involves using one or more of the following options:

- Salt (sodium chloride) is used in an increasing number of swimming pools and is broken down into the constituent chemical components of sodium hydroxide and chlorine by a salt chlorinator unit that works by electrolysis. Salt by itself is not a sanitiser - the pool must have a salt chlorinator fitted for it to sanitise. This unit works when the pump is running and allows for a more consistent level of sanitiser than other means. It reduces maintenance time BUT the water still needs balancing with the other chemicals to control the pH (acidity or alkalinity) and calcium hardness. The salt chlorinator can be turned down in the winter when lower levels of sanitiser are adequate (0.5-1 ppm chlorine for all pools). Salt raises the pH (making it more alkaline) so the manual addition of granular acid (**Wright Pools & Spas Balancing 4**) or liquid hydrochloric acid (generally used in automated systems such as the eEquilibrium) is also necessary.
- Liquid chlorine is cheap and very soluble but is not stabilized to counteract the effects of UV radiation from the sun meaning it has a very short shelf life of a few weeks. Like salt, it affects the pH by raising it (alkaline) so the addition of acid is also necessary. It only has around a 12-13% concentration meaning you have to add a lot compared to an equivalent dose of a granulated chlorine. It is unpleasant to dose a pool manually with it and it can bleach a pool surface, particularly vinyl liners. We recommend only using it with an automatic feeder.
- Sodium dichloroisocyanurate dihydrate (**Wright Pools & Spas Swim Chlor**) is particularly suitable for hand dosing vinyl pools. It is very soluble, has a relative high availability of chlorine (56-62%) and is stabilised with cyanuric acid that dramatically reduces the effect of UV radiation that breaks down the chlorine component. **Swim Chlor** has little impact on the pH.
- Trichloroisocyanuric acid is less soluble but longer acting, giving more consistent chlorine levels. It also contains the stabiliser cyanuric acid. This type of chlorine has an acidic pH meaning when in its most basic inexpensive form (such as **Wright Pools & Spas Chlor Tabs**), requires administration via a feeder or floater and should not be administered via the skimmer basket as it will cause damage & degradation to the plastic. Specialist types of this chlorine include **Bioguard Smart Sticks & Smarter Sticks** these have a formulation which means they only dissolve when water is flowing over them meaning they are economical to use and do not result in high concentrations of chlorine building up. Administration is done easily via the skimmer. **The Pacific Blue Power Tabs** are another specialist formulation with chlorine tolerant clarifiers and water enhancing agents meaning, very economical use and 20% less product is required than comparable sanitisers. These can be administered via the skimmer, feeders and floaters. **Bioguard Power Chlor** is a granular formulation and is suitable for manual dosing into the skimmer (important with vinyl pools).

- **UNDER NO CIRCUMSTANCES USE CALCIUM HYPOCHLORITE!** This chlorine containing product can be found in some retail outlets and will appear to be a cheap alternative. It is highly alkaline and **POTENTIALLY EXPLOSIVE** when handled or in the presence of any water or moisture. It can also raise calcium levels to an unacceptable level in the swimming pool water.
- There are some less common products available: Lithium Hypochlorite is very expensive and does not contain stabiliser. Bromine does not perform well in temperatures less than 30 degrees Celsius (it can be used in spa pools that run at a higher temperature).

Wright Pools & Spas Water Stabiliser (Granular Cyanuric Acid)

This product stops UV radiation from the sun from deactivating chlorine. Despite this being included in the sanitisers mentioned above, it can be necessary to top this product up in your swimming pool water especially at the start of the swimming season. We routinely check for this chemical as part of our complimentary water testing. A relatively modest amount may need to be added to the pool. This helps with saving active chlorine from being deactivated and saves money! Indoor swimming pools DO NOT need this product.

Oxidising (shocking) Regularly to eliminate waste products in the water

However fussy people are with cleanliness, inevitably micro-organisms and organic debris can be introduced to the pool. Environmental factors such as tree debris, insects, small mammals and pollutants can be a big issue. The family dog jumping into the pool can carry as much as twenty times more bacteria than a human! All these factors can contribute to the water having a dull/cloudy appearance, causing skin/eye irritation and providing food for algae. Oxidisers destroy (“burn off”) these organic contaminants in the pool water.

- **Bioguard Lite** (1 bag per 50,000 litres) This is a maintenance oxidiser that ideally should be used once a week during the swimming season and monthly in the off-season. It is a blend of chlorine and nonchlorine oxidisers, along with clarifiers and water enhancing agents. Swimming activity can be resumed 1 hour after application. It helps to keep the water sparkling and crystal clear. It is applied to the deep part of the pool where the water circulation is the poorest. It should be pre-dissolved if used in vinyl pools
- **Bioguard Burn Out Extreme** This is a “problem-solving” oxidiser for pools with mild or low algal problems or ‘chlorine demand’ issues. ‘Chlorine demand’ is an inability of the swimming pool water to maintain a sufficient level of chlorine for sanitation. It is also an ideal product to give a swimming pool a ‘kick start’ when it is newly filled with water. It is the best treatment for a mild or light green pool alongside a Bioguard algaecide (see below). Mildly green pools (if the bottom of the pool can easily be seen) can be treated with the standard dose. A larger dose is utilized for a more profoundly green pool. Advice from our staff should be sought in this situation. This product is slowly added to the skimmer with the pool pump running for at least several hours or until the problem resolves. The pool should not be swum in until the chlorine level is less than 5ppm
- **Bioguard Power Chlor** This is a very useful chlorinated pool granule product for the treatment of profoundly green pools in conjunction with **Bioguard MSA Extreme**, Algon Algatac or **Bioguard PolyGuard Concentrate**. It should be applied in the same way as Bioguard Burn-Out Extreme. This product (in the normal dosing) can also be used for routine chlorine treatment of fibreglass and concrete pools (ONLY into the skimmer). Pumps should run continuously whilst managing cloudy or green pools.

Algae Prevention

Algae spores are ALWAYS present even in the best-maintained swimming pool. The challenge is to keep them dormant and prevent them from growing. As algae have become more diverse and resistant, using a standard sanitiser such as chlorine has become less effective. Algae feed on the wastes mentioned before. Phosphate is a source of food for algae. It can be introduced to the pool by nearby garden fertilizer use or crop dusting, garden run-off, soil, decaying plant material, chemicals, bathers waste and from clothes washed in phosphate containing laundry products. We test phosphate levels as part of our complimentary water testing. Phosphates can be removed from the water using a **Starver or Algon Phosphate Remover** product. Another major factor that also stimulates algae to dramatically multiply is the temperature of the pool water, critically anything over 15°C. Increasing numbers become a health issue as well as imparting an unpleasant colour to the pool. The green algae are the most likely seen but black algae (especially on the surfaces) and mustard coloured algae (at higher temperatures) can also be an issue. Algaecides are needed particularly in the warm weather to maintain or treat swimming pool water. Brushing and vacuuming of the pool surfaces are required as well.

Bioguard MSA Extreme or Algon Algatac

An effective copper-based long-lasting copper-based algaecide that is particularly suitable for treating obviously affected pools.

Bioguard PolyGuard Concentrate or Algon MetalFree

A non-copper- containing product that is an effective preventative algaecide. It can act as a duck deterrent also. A heavier dose is provided for problem pools. Particularly suited in salt chlorinated pools

Bioguard Algizine or Algon HotZone

ONLY recommended for affected swimming pools resistant to other algaecides, as extra precautions are required in its use. It is a potential herbicide that could kill plant and grass if the water is vacuumed to waste.

NB With any successful treatment of a green pool using oxidation (shock) and algaecide application you may be disappointed to find the pool cloudy/ milky the following day. This is dead algae. To address this, we recommend use of **Bioguard Super Clear Clarifying Tabs, Bioguard Polysheen or Algon Clarifier** to 'glue' smaller debris together to form larger aggregates that are more easily removed by the swimming pool filter.



**When Green Algae Becomes Visible
It Is Equivalent To 30 Million Algae Spores In A Shot Glass**

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