

Preventing Chlorine Demand

Using the following products on regular basis will help to prevent and virtually eliminate chlorine demand problems in swimming pools.

Optimizer Plus

– adding borates to the water prevents algae growth and adds pH & total alkalinity buffers to the water. Typically used once or twice each swimming season. Once added to the water, the Optimizer Plus only needs to be maintained at a level of about 50 ppm. Optimizer Plus is only lost through evaporation, splash out & make up water. Compatible with ALL water treatment systems.

Pool Perfect or Pool Perfect with PhosFree

– natural enzymes “eat up” organic waste that is introduced into the swimming pool from swimmers, make up water and the surrounding environment (leaves, bugs, bird droppings, hair & body oils, lotions, etc.). Many of these organic wastes cling to pool surfaces and filter surfaces adding to the biofilm. Biofilm holds about 99% of the bacteria found in swimming pools. Enzymes will NOT thoroughly eat-up or remove biofilms, but will aid in the further growth & spread of the biofilm. Added weekly to the pool water. Compatible with ALL water treatment systems.

PhosFree

- removes build-ups of phosphates in the swimming pool water. Phosphates come from certain pool chemicals that are regularly added to the pool (most metal and mineral treating chemicals contain forms of phosphates). Phosphates also build-up through the introduction of dead skin cells and hair follicles (always shower before using the pool).

Although Phosphates may not be a serious problem, it is prudent to remove this additional contributor to chlorine demands. Added weekly to the pool water. Compatible with ALL water treatment systems.

Please see our brochure on bio-films for further details.

AquaFinesse

– removes build-ups of biofilms which contribute to chlorine demand in the swimming pool body and its surfaces including plumbing lines, tile-grout lines. Biofilms are a “generic” form of White Water Mold and Pink Slime. Biofilms also contribute and can become scale on heaters and salt chlorine generators which will effect the efficiency of these products. Biofilms are resistant to chlorine, bromine, ozone. Biguanides such as Soft Swim or Baquacil provide certain chemicals that CAN contribute to the growth of biofilms.

Biofilms are not easily killed; they must be removed from their “bed” and filtered out. After treating a pool with heavy biofilm growth, the filter must be chemically cleaned or the media changed. AquaFinesse is available as a Pool Puck that is added into the skimmer or in a floater on a weekly basis – Pool Pucks dissolve within several hours. Results are normally seen within a 2 to 3 week. AquaFinesse has been successfully used in many water projects throughout Europe for several years. Pools using AquaFinesse for a sustained notice easier water balance and reduced sanitizer use. Shocking can also be reduced from weekly to bi-weekly. Compatible with ALL water treatment systems.

PoolNaturally

– removes a wide variety of contaminants that contribute to chlorine demand and biofilm build-up. PoolNaturally utilizes naturally harvested & processed sphagnum moss to treat these contaminants. Much study of sphagnum moss and its “cleansing properties” has been studied by universities in the United States (U Montana and others). PoolNaturally “sticks” are introduced into the skimmer or into a PoolNaturally dispenser. PoolNaturally produces similar results as to lessened sanitizer use, shocking, and improved water balance as compared to AquaFinesse. PoolNaturally is 100% natural. Compatible with ALL water treatment systems.

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Chlorine Demand.

What it is.

How to treat it.

Important information for all swimming pool owners who want to treat the root causes of pool water quality issues.



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What is Chlorine Demand?

Simply put, Chlorine Demand is defined as "the quantity of chlorine reduced or converted to inert or less active forms of chlorine by substances in the water." Faust and Aly's Chemistry of Water Treatment further state that, "since chlorine is a non-selective oxidant, almost any substance in the water...will react and consume chlorine."

In other words, the more "stuff" dissolved in the pool water, whether organic or inorganic; chemical, vegetable or mineral; or heavy, constant rainfall can cause a chlorine demand.

Or more simply stated, not being able to successfully maintain a chlorine residual following a shock treatment. Chlorine residual should be 1.0 - 2.0 ppm FAC (Free Available Chlorine). FAC must not be confused with Total Chlorine (FAC plus Combined Chlorines or Chloramines). FAC is what actively kills bacteria and algae.

Many household cleaners that are not specifically formulated for in-pool water use will add components such as phosphates or nitrates which will interfere with the pool's sanitizer causing a chlorine demand.

Substances that can contribute to chlorine demand include, but are not limited to, human waste, animal waste (think of birds), household cleaners, wind-borne dirt, dust & debris, excess pool chemicals (especially cyanuric acid when added indiscriminately), make-up tap water (some municipalities have water that already has a chlorine demand!), rain water, suntan & body lotions, skin treatments, dead hair & skin.

Noticeable symptoms include algae blooms, spot algae, cloudy water, "funny tasting" water, white water mold (WWM) and pink slime.

Chlorine demands can occur in any pool. With normal use and normal chlorine additions, the level of FAC should remain fairly constant on a day to days basis. Fluctuations in FAC levels are a sure sign that something is happening and should be attended to immediately.

Treating Chlorine Demands

1. All Pools – regardless of water appearance

Pre-treatment:

TEST the water – a chlorine demand must be performed on the POOL water AND on the SOURCE water (well or tap water). Much of the municipal water in the USA is treated with chlorine and ammonia which creates chloramines. Chloramines are the major contributor to chlorine demand problems.

Determine the water balance.

Determine the severity of the water condition – appearance, algae, poor filtration/circulation; a pool can have a chlorine demand (in-ability to maintain chlorine) even if the water is clear.

Determine how quickly the pool owner wants to take to treat the chlorine demand. If immediately, then a "cocktail" of Oxysheen and Burn Out works best. If the customer wants to save chemical money and has a few days, then a partial drain & refill works well (in this case a testing of the source is essential to determine if the make up water has a chlorine demand).

Determine phosphate level. Treat if needed.

Attend to filtration and circulation problems before any chemical treatments.

2. Cloudy Pools.

Determine HOW cloudy the water is.

Not clear vs. hazy vs. cloudy vs. soup.

Treat any visible or suspected algae.

Prior to shocking, use a floc (PowerFloc or SoftSwim Filter Aid) treatment to drop any particulate to the pool floor to be vacuumed OUT of the pool – be sure to vacuum on Direct Waste (sand filters).

DE or Cartridge filters may need to disconnect part of the filter to allow a bypass. Follow shocking procedure. Dropping out the particulate will treat some if not most of the chlorine demand.

Proceed with shocking procedure. Divide shock into 50% Oxysheen or MPS shock and 50% Burn Out Extreme (if calcium hardness is low or normal) or Burn Out 35 (if calcium hardness is high). DO NOT use liquid chlorine (insufficient chlorine to break the demand) or Super Soluble (sodium di-chloro) due to the unwanted addition of cyanuric acid (stabilizer) that will be added. High levels of CYA (over 150 ppm) can lead to chlorine demand.

3. Clear Pools.

It is up to the customer whether they want a FAST treatment (chlorine shock as detailed above) or partial drain & refill.

4. If Source Water has a Chlorine Demand.

If the source or make up water has a chlorine demand, DO NOT perform a partial drain & refill.

Proceed with the chlorine shock treatment procedure as noted above.

5. Post Chlorine Demand Treatment.

After 4 – 5 days, re-test the water.

Adjust all water balancing parameters – pH, Total Alkalinity, Calcium Hardness.

Be sure a FULL shock treatment is done WEEKLY to help prevent a recurrence of the chlorine demand.

There are several preventative measures to limit or eliminate future chlorine demand issues.

Chemical and Natural products for crystal clear water

Further prevent chlorine demand & other pool water quality issues by following the 5 Keys to Pool Care.