**BIOGUARD 3-STEP PROGRAM**

The BioGuard 3-Step Chlorine Program is an easy to follow, once a week system that will keep your water crystal clear, under normal conditions, all year long. *It’s as easy as 1-2-3!*

**Step 1- Sanitize to kill bacteria**  
**Step 2- Shock to clarify water and destroy organic contaminants**  
**Step 3- Prevent Algae growth**

**Step 1-** Sanitize using Silk Tabs®, Silk Sticks® or Silk Smart Sticks®, Power Chlor™ or Super Soluble.

Silk Tabs & Sticks® keep pool water sanitized and silky smooth. Unlike traditional chlorine, SilkGuard® actually softens the water, and with special additives that attach to hard water components and metal surfaces, SilkGuard protects your pool equipment from scale, corrosion and staining, all while killing bacteria. Our blue Silk Tabs & Sticks kill bacteria and control algae and contain Sunshield® Technology so that chlorine is protected from sunlight for long lasting sanitization of pool water. Silk Tabs & Silk Sticks can be added to the skimmer basket, floating dispenser or automatic chlorinator at a rate of (2) 3” tablets or (23) 1” tablets per 10,000 gallons of water per week.

Silk Smart Sticks® feature all of the benefits of SilkGuard technology along with extra long-lasting chlorine sanitizer that dissolves slowly, and all but stops dissolving when pump is off. Killing and preventing bacteria, while maintaining proper chlorine levels, Silk Smart Sticks are easy to apply to skimmer, no special feeder required. Dosage is 2 sticks per 10,000 gallons of water weekly*. **DO NOT** add Silk Smart Sticks to a floating dispenser, chlorinator or feeder- use **only** in skimmer basket. *If pump circulation is more than 12 hours per day, Silk Smart Sticks may need to be applied more often than once per week.

**Step 2-** Shock using one of the BioGuard Shock treatments; CLC, Smart Shock, Burn Out Extreme, Burn Out 3, Easy Shock & Swim, Oxysheen once a week to oxidize (burn out) any contaminants and free up any combined chlorine.

**Step 3-** Add a maintenance dose of Back Up Algae Inhibitor at a rate of 2 oz. per 10,000 gallons water.

**TIPS**

- For best results you should operate your pump 12 hours per day, if you have a 2-speed pump run 24 hours a day on low speed.
- Establish an initial cyanuric acid level (stabilizer 100) of 30-40 ppm.
- Test and maintain a pH reading between 7.4-7.6.
- Bring a water sample to our store on initial opening and once a month for testing.
- **REMEMBER** chlorine is a powerful oxidizer and special care should be taken in the handling, storage and application of this and other pool chemicals. Please see Chemical Safety for complete recommendations and follow all manufacturers’ directions on the bottle labels.
SHOCKING or Superchlorination

In addition to maintaining a consistent chlorine residual it is necessary to shock the pool by adding a larger than normal dosage of chlorine on a weekly basis, more frequently in hot weather or heavily used pools. When you shock your pool you use the process of oxidation to chemically remove (burn up) organic debris, such as body waste, particulate matter and perspiration, from the water. Free chlorine (active chlorine) combines with organic compounds (perspiration, urine, dirt, etc.) and chloramines are formed. Chloramines or combined chlorine is 40 to 60 times less effective than free available chlorine. Combined chlorine, in addition to reduced effectiveness against bacteria can cause eye irritation and so-called “chlorine odor.” This may also result in a dull or flat look to your pool. A properly balanced and chlorinated pool will have no discernible odor. Weekly additions of CLC, Burn Out Extreme, Burn Out 3, Smart Shock, Easy Shock & Swim, or Oxy Sheen will oxidize the water and keep it looking great. You can usually return to the water within 15 – 30 minutes after shocking with BioGuard shock treatments but it is always best to test the water to be certain that the Free chlorine reading is 3 ppm or lower before re-entering. In addition to weekly shock treatments it is also a good idea to shock the pool after heavy use, a storm or at first signs of algae or cloudy water. See Shocking or Superchlorination for more information.

Because chlorine is a very strong oxidizer there are certain precautions you should follow when using, storing and handling this chemical. See Chemical Safety for more detailed instructions.

TIPS

- For best results you should operate your pump 10-12 hours per day.
- Establish an initial cyanuric acid level (stabilizer 100) of 30-50 ppm, see Conditioner
- Test and maintain a pH reading between 7.4-7.6, see Water Balance
- Bring a water sample to our store on initial opening and every 4-6 weeks for testing.
- REMEMBER chlorine is a powerful oxidizer and special care should be taken in the handling, storage and application of this and other pool chemicals. Please see Chemical Safety for complete recommendations and follow all manufacturers’ directions on the bottle labels.

CONDITIONER or STABILIZER

The sun is a natural enemy to the chlorine residual in your pool. In fact, an ideal level of chlorine in an “unstabilized” pool or spa can be lost in less than two hours on a bright sunny day due to the UV rays of the sun. You can think of cyanuric acid as blocking the effect that the sunlight has on breaking down the chlorine—kind of like a sunscreen for your pool. Silk SmartSticks and SilkTabs are stabilized chlorines, meaning they already have a level of cyanuric acid or stabilizer in them but your pool will require a base level of stabilizer at initial start-up.. You should have your water tested by your pool professional at the start of each season and maintain a 30-50 ppm cyanuric residual. To raise cyanuric acid add Stabilizer 100 per label directions. Lowering cyanuric levels can only be achieved by draining water so be certain to only add this chemical when testing has established a need.
START-UP

*Have your water professionally tested by your pool professional.*

**Step #1**
If test results suggest metals or minerals in your water you should add Pool Magnet Plus following label instructions for start-up and dosages—PRIOR to any other chemical applications. Otherwise—begin with step #2.

*Wait 48 hours before Step #2*

**Step #2**
Balance the pool water per your pool professional’s water test results for pH, Total Alkalinity, Conditioner and Calcium Hardness. If no adjustments are needed begin with step #3.

*Wait 24 hours before Step #3*

**Step #3**
With filter running (on high speed) add Stabilizer 100 through skimmer as directed—DO NOT backwash or drain filter for at least 3 days.

**Step #4**
Broadcast the BioGuard shock included with your start-up kit—You DO NOT need to pre-dissolve but do need to run filter for a minimum of 2-4 hours.

**Step #5**
Add Silk SmartSticks to the skimmer basket only
(Dosage is 2 sticks per 10,000 gallons of water)

OR

Add 1” or 3 “ SilkTabs or Silk Sticks to floating dispenser or feeder
You should fill or add (2) 3” or (23) 1” per 10,000 gallons of water.

WEEKLY CHEMICAL MAINTENANCE  3-steps

**Step #1**
Add Silk Smart Sticks to skimmer basket only
(Dosage is 2 sticks per 10,000 gallons)

OR

Add Silk Tabs 1” or 3” to float or feeder- check weekly and refill.
Dosage (2) 3” tabs or (23) 1” tabs per 10,000 gallons of water.

*Remember, you want to maintain a free chlorine level of 1.0-3.0 ppm.*

**Step #2**
Add Smart Shock at a rate of 1 lb. per 12,000 gallons of water
Burn Out 3 Out 35-1 lb. per 6,000 gallons water
OR CLC or Burn Out Extreme -1 lb. per 10,000 gallons
OR Easy Shock & Swim at a rate of 1 lb. per 12,000 gallons of water
OR OxySheen at a rate of 1 lb. per 10,000 gallons of tware.

**Step #3**
Add a maintenance dose of Back Up Algae Inhibitor at a rate of 2 oz.
per 10,000 gallons of water.

Test your water 2 to 3 times per week and adjust the pH, Total Alkalinity and sanitizer as needed.

MONTHLY CHEMICAL MAINTENANCE

Have your pool water tested by your pool professional every 4-6 weeks and adjust any necessary items.

ONCE OR TWICE A SEASON  Chemically clean your filter using Kleen It and Strip Kwik.
BASIC WATER CHEMISTRY

The factors that define water balance are:

- pH
- Total Alkalinity
- Calcium Hardness
- Total Dissolved Solids
- Metal Content

Balanced water is vital for bather comfort, effectiveness of your sanitizer and protection of pool and equipment from corrosion or scaling. You will be testing and maintaining your sanitizer, pH and Total Alkalinity on a regular basis, 2-3 times per week. Your BioGuard dealer will test for TDS, Calcium Hardness, Stabilizer, Optimizer and Metal content on initial fill or start-up and every 4-6 weeks throughout the season.

**pH**

pH is the number that characterizes the acidic or basic characteristics of the pool water. Measured on a scale from 0-14, 7 being neutral. pH is the single most important element in swimming pool water chemistry, it affects every other chemical balance in pool water. It is important to maintain a pH reading between 7.4 - 7.6. The type of sanitizer you use can affect your pH as does rain water and many other things, requiring you to test and adjust your pH on a regular basis. Maintaining the pH of your pool is the most important thing you can do to preserve the life of your liner and heater.

**Ideal range 7.4 – 7.6**

**High pH (over 7.8) water is too Basic**

- promotes scale
  - Scale will form on the pool surface.
  - Scale in a heater decreases efficiency 10%.
  - Scale in a Sand filter channels the sand around the bed.
  - Scale in a light niche will insulate it and cause it to over heat.
  - Scale in DE and Cartridge Filters can destroy material.
- promotes cloudy water
- swimmers will complain of dry skin and irritated eyes
- causes sanitizer to be less effective

**To lower the pH add BioGuard Lo ‘N Slo** per label directions.

Please make note of the following when you are lowering your pH with Lo ‘N Slo:

- After application circulate water for 2 hours and then retest pH.
- Never add more than 1 1/2 lbs. of Lo ‘N Slo per 10,000 gallons at one time
- Do not add near metal fittings nor allow pH to drop below 7.2
- Do not allow un-dissolved lumps to remain on the pool bottom. Break up with brush.

**Low pH (below 7.2) water is too acidic**

- promotes corrosion
  - Corrosion in vinyl liners causes vinyl to lose its plasticizers-causing wrinkles.
  - Corrosion in equipment causes pitting.
- promotes clear water-hard to tell something is wrong.
- swimmers will have irritated skin and red eyes.
- causes sanitizer to be used up quickly.
To raise pH use BioGuard Balance Pak 200 per label directions.

Please note the following when you are raising your pH with Balance Pak 200:

- After application continue to circulate water for 2 hours and retest pH.
- Add a maximum of 1 lb. per 10,000 gallons of water per application.

Total Alkalinity (TA)

Total Alkalinity is a measure of the ability of the water to resist pH change. This test measures the concentration of carbonates, bicarbonates, silicates, borates and other chemical compounds that contribute to Total Alkalinity. If the total alkalinity is within range it acts as a buffer against changes in pH. So if it rains heavily or a lot of people are in for a swim, the Total Alkalinity absorbs the shock of pH changing events and the pH doesn't “bounce”.

Ideal ranges

Vinyl pools 125-150; Pools using Mineral Springs should maintain a TA reading of 80-120 ppm.

High TA (over 180)

- promotes scale
  - Scale will form on the pool surface.
  - Scale in a heater decreases efficiency 10%.
  - Scale in a Sand filter channels the sand around the bed.
  - Scale in a light niche will insulate it and cause it to over heat.
  - Scale in DE and Cartridge Filters can destroy material.
- promotes cloudy water.
- swimmers will complain of dry skin and irritated eyes.
- causes sanitizer to be less effective.

To lower Total Alkalinity add BioGuard Lo'N Slo per label directions.

Please note the following when you are lowering your pH with Lo'N Slo:

- After application circulate water for 2 hours and then retest pH.
- Never add more than 1 1/2 lbs. of Lo'N Slo per 10,000 gallons at one time
- Do not add near metal fittings nor allow pH to drop below 7.2
- Do not allow un-dissolved lumps to remain on the pool bottom. Break up with brush.
Low TA (under 100)
- Promotes clear water-hard to tell something is wrong.
- Swimmers will have irritated skin and red eyes.
- Causes sanitizer to be used up quickly.

To raise TA add Balance Pak 100 per label directions.

Calcium Hardness
Water is a universal solvent. Given enough time, pressure and temperature, water will dissolve most metals or minerals into a solution. Because of this tendency, any minerals that are present in the water’s environment will ultimately end up dissolved in the water. Though calcium is not the only mineral in water, it is certainly the most prevalent. When detergent manufacturers were recognizing the characteristics of how their soaps performed in different types of water, they noted that in water with high mineral levels it was hard for soap to suds-up. So, water that easily suds-up with soap is said to be soft.

Calcium Hardness in a pool is an important water balance characteristic. Pool water that has too little calcium is likely to be aggressive. The water needs to satisfy its mineral appetite and it looks for the most vulnerable means to satisfy this mineral hunger.

Ideal ranges
Vinyl Lined Pools  175- 300 ppm, ideal 225 ppm

High Calcium Hardness (over 350 ppm)
- promotes scale
  - Scale can form on the pool surface.
  - Scale in a heater decreases efficiency 10%.
  - Scale in a Sand filter channels the sand around the bed.
  - Scale in a light niche will insulate it and cause it to overheat.
  - Scale in DE and Cartridge Filters can destroy material.
- promotes cloudy water
- swimmers will complain of dry skin and irritated eyes
- causes sanitizer to be less effective

To lower calcium hardness requires draining water from the pool.
**DO NOT** drain water until you consult with your BioGuard professional as to how to and how much to drain. Scale Inhibitor would be recommended for maintenance to help stop calcium from sticking to surface. **Vinyl and fiberglass pools should never be drained without professional advice.** Scale Inhibitor will help inhibit scale formation. Add Scale Inhibitor monthly around the perimeter of the pool, at a rate of 16 oz. per 10,000 gallons of water. After application, watch filter pressure and backwash if necessary.
Low Calcium Hardness (below 175 ppm)
- promotes corrosion
  o Corrosion in vinyl liners causes wrinkles.
  o Corrosion equipment causes pitting.
- promotes clear water-hard to tell something is wrong.
- swimmers will have irritated skin and make eyes red.
- causes sanitizer to be used up quickly.

To raise calcium hardness add BioGuard Balance pak 300
Low calcium pools have a tendency to foam, as the soft water easily becomes sudsy!

TDS
TDS is the measurement of the total dissolved solids in the water. Remember, water is a universal solvent; metals, minerals, salts, chemicals, organic waste-virtually everything water contacts, goes into solution. Everything dissolved in the water is measured. When too many are in solution several problems occur. Over time the TDS levels in your pool water will increase.

Ideal range
Should not be left to exceed 1500 ppm

High TDS Levels (over 1500 ppm)
- water becomes hazy.
- sanitizer is less efficient, TDS decreases its ability to attack and bacteria and inhibit algae.
- filtration will NOT remove dissolved solids in the water.

Lowering the TDS Level requires draining water from the pool.
DO NOT drain water until you consult with your BioGuard professional as to how to and how much to drain.

METALS
There are various metallic substances that can be found in pool water (copper, iron, manganese, etc.) which can cause staining and discoloration in your pool. These substances can occur naturally from the water used to fill the pool or from metallic pool equipment parts if water has been acidic or corrosive. Any time metal objects such as poles, toys, and tools that fall into the swimming pool, they can release iron and copper into the pool water. These local deposits of metal can cause discoloration of the pool surface. Your pool professional will test the water used to top up (fill) your pool for the presence of metals and recommend the appropriate course of chemical action PRIOR to the addition of any chemicals. PREVENTION is much easier than treatment, especially when it comes to metals. Your pool professional may recommend a specific course of action to remove metals if they test high. To Prevent Metal staining or discoloration BioGuard Stain remover or Pool Magnet Plus should be used at start-up following label instructions and when recommended, on a weekly basis to prevent metal staining or discoloration, see Specialty Chemicals for more information.

Iron- If present it will stain pool orangish/brown. Chlorine entry will oxidize metal and make the stain more intense. Ideal levels - 0 ppm

Copper -If present will stain pool greenish/blue or grayish/blue.
**SPECIALTY CHEMICALS**

There are many specialty chemical products available today to treat a wide range of water problems while reducing chemical usage and maintenance time.

**Algae Treatment-**
As discussed early in this manual, prevention is always preferable to treatment when it comes to water problems. Maintaining the proper level of sanitizer in your pool is critical to the prevention of algae. In addition there are algae inhibitors that can be routinely added to prevent algae growth and algae killers that can be used if an algae problem occurs.

**Algae Inhibitors-**
Include BioGuard Back-Up Algae Inhibitor at a rate of 2 ounces per 10,000 gallons of water. Used weekly as part of your routine chemical program Back-Up will help your pool stay clear and algae free all summer long.

**Algae Killers-**
Banish™ is the most effective algaecide available to treat all types of algae. It contains a patented chelating agent that prevents staining — a common occurrence with other copper-based algaecides. Fast-acting formula produces results in 24 hours while allowing swimmers to return to water soon after treatment. Treatment of an existing algae problem will also include shocking the pool with BioGuard Burn Out Extreme. See Shocking and Superchlorination for details.

**Chelating or sequestering agents-** Stain Preventors
If metals or minerals are present in pool water we may recommend a chelating or sequestering agent to prevent staining or scaling by binding metals or minerals together so they will not precipitate (fall out of solution). These products work best to prevent discoloration PRIOR to the use of any chemicals so remember to have your water tested for metals by your BioGuard professional BEFORE adding chemicals.

**Clarifiers**
Polysheen Blue clarifies the water by helping to filter out suspended particles that cannot be oxidized. Made of Polyelectrolyte, it attracts and coagulates, or binds, small particles together making them large enough to be trapped by the filter. Be sure to read and follow the instruction label. See Cloudy Water for more information.

**Filter Aid**
Sparkle Up™ can be used to increase filter efficiency in D.E., Cartridge and Sand filters. See the directions for your specific filter type, as they will vary with each.

- Restores water sparkle, keeping pool water clear
- Helps the filter remove tiny particles of dirt, dead algae, pollen, etc.
- Removes metals to prevent staining
**Flocculants**

PowerFloc is used to treat extremely cloudy water by binding suspended particles and settling to the pool floor. This treatment involves loss of water as the settled material should be vacuumed to waste (by-passing the filter system) so you should consider your water level prior to use. See label directions for application instructions. See Cloudy Water for more information.

**Filter Cleaners**

Generally, your filter should be chemically cleaned 1 to 3 times per season using Strip Kwik and Kleen It. Strip Kwik removes oils and grease from all types of filters, acting like a shampoo for the filter. Kleen it uses a dual action formula designed to remove scale, dirt and debris.

- Promotes greater filter efficiency
- Keeps water clearer
- Reduces maintenance costs
- Can reduce chemical use
- Lengthens the life of the filter media

**Tile & Vinyl Cleaner**

You should clean the waterline of the pool often to prevent a scum-line from forming. Off The Wall™ is a heavy-duty, non-abrasive surface cleaner that removes scale and hard water deposits, grease and dirt along the water line.

**CAUTION:** When using any chemical you should always read the label directions for usage and handling instructions. Follow all safety guidelines on the bottle as well as the Chemical Safety recommendations found within this manual.