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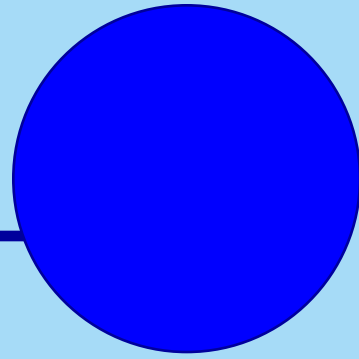
THE COMPREHENSIVE GUIDE

*To Swimming Pool
Ownership*

By Larry Couture, Jeff Grotte, and
Michael Dewar



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Introduction.

Some of the best and most enduring childhood memories will typically revolve around the family swimming pool. In many areas, a swimming pool is needed just to cool off. Lately, swimming pools have become an integral part of fitness and therapy. This book is an attempt to save you numerous hours of time and frustration in the operation of your pool and is the collaborative effort of over 10 pool professionals with a combined 200 years of experience and 20,000 swimming pools built and supported. This pool experience has come from the vinyl markets in Minnesota, the gunnite markets of the Arizona desert, and the moderate climate, service oriented geography of California, the south of France, and the

Middle East.

This book reflects, in every case, the swimming pool owner's perspective. As with all works of this nature, the information includes some philosophy, but this book's main purpose is to encourage swimming pool ownership and provide the first-ever comprehensive guide to owning a swimming pool.

Whether you are a do-it-yourself or a hands-free pool service client, we are sure that the information in this book will make your swimming pool ownership a very pleasant experience and you will use LESS chemicals.



Questions?

Call us toll-free

1-800-IONSWIM (U.S.)
(612)866-1200 (INT)

POOL WATER VOLUME

To estimate the amount of water in your pool, insert the requested measurements in the correct equation. *You will use this number to calculate your cycle time.

Rectangular Pool:

$$\begin{array}{|c|} \hline \text{LENGTH} \\ \hline \end{array} \times \begin{array}{|c|} \hline \text{WIDTH} \\ \hline \end{array} \times \begin{array}{|c|} \hline \text{AVG DEPTH} \\ \hline \end{array} \times 7.5 = \begin{array}{|c|} \hline \text{GALLONS} \\ \hline \end{array}$$

Circular Pool:

$$\begin{array}{|c|} \hline \text{DIAMETER} \\ \hline \end{array} \times \begin{array}{|c|} \hline \text{DIAMETER} \\ \hline \end{array} \times \begin{array}{|c|} \hline \text{AVG DEPTH} \\ \hline \end{array} \times 5.9 = \begin{array}{|c|} \hline \text{GALLONS} \\ \hline \end{array}$$

Oval Pool:

$$\begin{array}{|c|} \hline \text{MAX WIDTH} \\ \hline \end{array} \times \begin{array}{|c|} \hline \text{MAX WIDTH} \\ \hline \end{array} \times \begin{array}{|c|} \hline \text{AVG DEPTH} \\ \hline \end{array} \times 5.9 = \begin{array}{|c|} \hline \text{GALLONS} \\ \hline \end{array}$$

CYCLE TIME CALCULATION

$$\begin{array}{|c|} \hline \text{GALLONS} \\ \hline \end{array} \div \begin{array}{|c|} \hline \text{PUMP GPM} \\ \hline \end{array} \times 60 = \begin{array}{|c|} \hline \text{THIS IS YOUR CYCLE TIME} \\ \hline \end{array}$$

- To calculate your cycle time, enter the appropriate measurements into the equation.

- Gallons per minute (GPM) can be found on the side of the filter pump or written within the pump instruction manual. It is usually 55 or 70 GPM.

EXAMPLE

If my pool is 40' by 20' with an average depth of 5' and a GPM of 70, then...

40 x 20 x 5 x 7.5 = 30,000 gallons (use this number)

30,000 / (70 x 60) = 7.14 hour cycle (about 7 hours, 8 minutes)

Figuring out what you own:

Swimming pool overview

Equipment Sheet (Fill in)

Name _____ Phone _____

Address (Street) _____ (City) _____ (State) _____ (Zip) _____

Surface Type (circle): Plaster _____ Vinyl _____ Fiberglass _____
Finish Type

Dinensions: _____ If free form: _____ Perameter (in ft. or m)

Gallons est.: _____ Max depth: _____

Filter Type (circle): **Sand** **D/E** **Cartridge(s)**

Filter Size (circle): 200 300 500 900 24 36 48 60 72 75 150 200 Other: _____

Pump Type (circle): 3/4 HP 1.0 HP 1 1/2 HP 2.0 HP Other: _____

Skimmers (circle): 1 2 3 4 Other: _____

Jets (circle): 1 2 3 4 Other: _____

Vacuum Type (circle): **Skimmer** **Robot** **Pressure Side Sweep** **Hand Vacuum Only**

Vacuum Brand: _____

Covers (circle all that apply): Solar Winter Safety Automatic With Reel With Waterbags
Open Mash Below Track Solid Mesh Above Track

Heater/Heat Pump (circle): Natural gas Propane Electric Brand: _____

Heater size in BTU (circle): 120 180 265 325 400 Other: _____

Main drains (circle): Yes No Antisucktion 2 Main drains

Lighting (circle): In-pool Perimeter LED Fiberoptic

Automated Controls (circle): Jandy Compool Pentair Intermatic

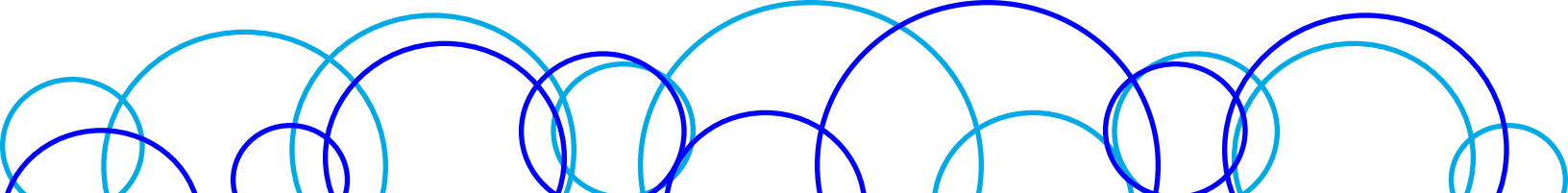
Alternative Sanitizers (circle): Saltwater Generator Ozone/Oxygen Ionization Ionization/Oxygen
Brand: _____

Attached Water Feature (circle all that apply): Spa Waterfall Diving board Slide

Builder (if known): _____ Phone: _____

Other notes: _____

Complete this form and give to Pool Store before seeking advice or quote on filtration systems or chemicals



Inventory your pool: Chemicals on hand

Test Kits

please circle if applicable

pH	Phenol Red	Bromethyl Blue
Alkalinity	_____	
Sanitizer	Cl	Br Cu NONE
Calcium Hardness	YES	YES YES NONE
Cyanuric Acid	YES	NO NO NONE
Meters (if any)	_____	NONE
Phosphates	_____	NONE

Chemicals

pH UP	Sodium Bicarbonate Soda Ash
pH DOWN	Sodium Bisulfate Muriatic Acid Carbon Dioxide
Algaecide	_____ Brand
Sanitizer	_____ Chlorine _____ Bromine _____ Bacquacil _____ Other
Shock	_____ Brand Chlorine Non-Chlorine Circle
Scale Control	_____ Brand
Metal Remover	_____ Brand
Clarifer	_____ Brand
Hardness Increaser	_____ (Calcium Chloride)
Balance Pack	_____

Complete this form and give to Pool Store before seeking advice or quote on filtration systems or chemicals

POOL TALK

Getting Ready.

Turnover Cycles

Use the conversion charts on page 4 to determine the time necessary for your pump and filter to completely cycle the water in your pool 1 1/2 to 2 complete cycles per day. The sanitizer requires at least 1 1/2 to 2 complete cycles per day in order to maintain crystal-clear water. Running the pump during daylight hours is necessary to achieve good results.

What causes algae problems?

There are over 21,000 known varieties of algae! Algae spores constantly enter the pool, brought in by wind, rain, or even contaminated swimsuits or equipment. When conditions are right, an algae bloom can occur seemingly overnight. These conditions include imbalanced water, warm temperatures, sunlight, and the presence of nitrates. Of course, lack of proper filtration, circulation, and sanitation may be the primary causes of algae. A suction vac-

uum is highly recommended by most manufacturers, as is backwashing only after a pressure rise of 6 lbs and before a rise of 10 lbs.

Algae are living aquatic creatures that multiply rapidly in warm, sunny conditions. Containing chlorophyll, algae utilizes photosynthesis to grow. That is, they take in carbon dioxide and expend oxygen as a byproduct.

The two main problems with algae are: people do not want to go swimming (1), and it takes time and money to rid the water completely of algae (2). Algae itself is not harmful to swimmers, but pools with algae may also be residence to other pathogens. Proper water balance and filter maintenance are necessary to prevent algae growth. Also, regular brushing prevents dirt from harboring in the pores of your pool surface, where algae colonies like to start. The use of specialty chemicals or algaecides may be necessary as a back up

to the sanitizer and existing filtration. Filtration upgrades will solve 99% of these problems.

Confirming your cycle

Once you have calculated your turnover time, you can confirm the number of operating daylight hours needed to properly filter your pool. Whenever your swimming pool does not look right, your pump and filter must operate 24/7 until your pool looks crystal clear, assuming, of course, that your pump and filter are properly sized.

Visiting your pool store

We have enclosed (on pg. 5 and 6) two comprehensive forms to hold all the information you need when visiting a pool store. A completed form will allow a swimming pool professional to give you the proper advice.

Testing your water:

Weekly testing is required

Regardless of what sanitation method you choose, you must test the water every week and, in desert climates, at least twice per week between May and September if you wish to operate a crystal clear pool. The number of swimming pools that operate crystal clear 52 weeks in southern climates or 26 weeks in northern climates may be zero, but certainly 95 percent of them experience six to eight consecutive week runs of crystal clear water on a regular basis.

Unfortunately during these six to eight week periods both homeowners and pool services become complacent, particularly in the area of water testing. You must own and perform the following weekly tests if you seek the 52 week elusive goal of crystal clear pool water, categorized by sanitizer and frequency of the test per their manufacturers.

To achieve 52 weeks crystal clear:

	Chlorine/Bromine	SALT-Chlorine	Ionization	Ozone/UV
FREE CL/BR	Daily/Weekly	Weekly	N/A	Weekly
TOTAL CL/BR	Daily/Weekly	Weekly	N/A	Weekly
pH	Weekly	Weekly	Weekly	Weekly
CH	Quarterly	Quarterly	Annually	Quarterly
aK	Weekly	Monthly	N/A	Weekly
Cyanuric acid	Monthly	Monthly	N/A	Monthly
Total salinity	N/A	Monthly	N/A	N/A
Phosphates	Semi-annually	Annually	Annually	Annually
Copper	Annually (to remove)	N/A	Weekly	Annually

If you employ a pool service it is reasonable to request your weekly water test results, particularly if extra charges apply for chemical or extra maintenance issues. It is not reasonable to expect 365 days of crystal clear water, regardless of the price paid for weekly pool services or the sanitation method used.

If you seek the elusive 365 days be prepared to learn your pool, help your service, pay

for or perform preventative maintenance and communicate with your suppliers regularly, not just when issues arise. The swimming pool industry has invested in water testing services, which are excellent for problem solving, but require weekly visits to the pool computer for best results. Use the inventory sheets on p. 5 and 6 of this book to receive the best advice and materials.

Understanding your computerized water analysis

There are several factors involved in running a balanced swimming pool

pH

Potential hydrogen is important for sanitation to work properly. For chlorine or bromine pools, the pH needs to be maintained between 7.4 and 7.8. For bacquacil, the pH needs to be between 7.2 and 7.6. For alternative sanitizers like ionization, 6.8 to 7.2 is appropriate. In all three of these cases, you are actually running at neutral, as chlorine raises the neutrality to 7.4.

Calcium Hardness

Calcium is also very important to running a swimming pool. For this reason, pools should not be filled with soft water. All pools should maintain a minimum of 200 ppm, with 400 ppm being ideal for ionization.

Chlorine/Bromine

Chlorine/bromine needs to be measured for a chlorine/bromine based pool. The ideal level of sanitation is 1.5 ppm (one important note- chlorine loses its effectiveness if the temperature if it goes over 90 degrees).

Copper

Copper needs to be measured for ionized pools. The ideal level of sanitation is between 0.4 and 0.7 ppm if there is zero chlorine. Copper can be maintained at 0.4 ppm if free chlorine is 0.5 ppm. If copper or free chlorine numbers are any higher there is a risk of staining the pool.

Biguanide

The ideal level of biguanide for a bicquacil pool is 30 to 50 ppm. Hydrogen peroxide shock and algacide also need to be added weekly.

Alkalinity

Alkalinity is a factor for chlorine, bromine, and bacquacil pools. Proper alkalinity levels can help to stabilize the pH of the pool. Typically, this should measure between 80 to 120 ppm.

Phosphates

Phosphates can cause significant problems when trying to run a pool properly. They ideally should measure 0 ppm. If they measure less than 1000 ppm then a product like Zero-Phos is effective at removing them. If over 1000ppm, aluminum sulfate should be used to remove them. (See page 10).

TDS

Total dissolved solids are anything solid that can dissolve in water. If this level reaches a level of over 2000 ppm then the pool needs to be drained and refilled.

CYA

Cyanuric acid (cyanide) is a stabilizer used to extend the life of chlorine. 35 is the ideal level. Cyanide is not compatible with ozone or oxygen based sanitation. This level should be monitored to avoid significant negative health effects at a level of 100 ppm.

Salt

Sodium is often measured as a function of your TDS. Solid levels over 3000 ppm can pit concrete, ruin landscaping, and give backteria a place to hide.

PHOSPHATES

Will fertilize your pool

The proper procedure for using aluminum sulfate on phosphate removal when levels are over 1000 is as follows:

The pH must be at 7.4 or higher. Add 5 lbs of aluminum sulfate per 10,000 gallons of water. Recirculate the water for 2 to 3 hours. Allow the pool to settle (approximately 18 to 36 hours). When the water is clear, vacuum to waste, and rebalance your pool. This procedure will knock the phosphates down to about 200 ppm, so Phos Free will still need to be added when rebalancing.

Phosphates typically come from fertilizers in a variety of ways. They can be tracked into the pool by walking across a chemically treated lawn. They can blow into the pool from an airplane that is spraying a farmer's field. With

the recent softened restrictions on water quality, phosphates can even be found in your water supply that is refilling your pool. In recent years, the new "clear air act" has changed air quality requirements for burning coal and refining petroleum.

Phosphates will create all kinds of issues for the pool that may seem unexplainable. Signs of phosphates in your pool include murkiness that won't go away, fluorescent green water, and algae blooms that come and go.

Phosphates act as a food source for algae and will counteract all known sanitation methods. They also tend to load in certain types of medias, like Zeolites, and can be very troublesome to remove. If you can locate the source of them, you have a chance of being able to eliminate them.

If phosphates are found in your water supply, a carbon filter on the end of the hose will keep them out of the pool. When lawns are being sprayed, avoid walking on the grass, and cover your pool.

Whether your pool uses conventional chlorine or an alternative sanitizer, you must confirm phosphates at zero. There are two methods of removing phosphates from the water based on the level found. Phosphates are measured in parts per billion. At 1000 or less, a product like Phos Free will work on them. If they are over 1000, then aluminum sulfate will be required to knock them down to a level where Phos Free will work.

Phosphates over 2,000 ppm - Step 1

Procedure for aluminum sulfate removal:

pH must be 7.4 or higher

Add 5 lbs aluminum sulfate per 10,000 gallons of water

Let pool run in recirculate mode for 2 to 3 hours

Shut the pool off and allow it to settle until water is clear (18 to 36 hours)

Vacuum pool to waste

Add liquid phosphate remover to get them to zero

PHOSPHATES

The new pool industry buzzword.

Author: Natural Chemistry® Newsletter - Vol. 11, March 2007, p. 2

Phone: 1-800-753-1233

URL: <http://www.naturalchemistry.com/>

Two of the most frequently asked questions on Natural Chemistry's pool tech line are, "What is phosphate?" and "How do phosphates get into my pool or spa?"

What is a phosphate?

Phosphates have been around long before any pools or spas were built. However, it has recently been proven that phosphates have a detrimental impact on pool and spa water, making phosphates the "buzzword" in the industry.

How are phosphates introduced into pools and spas?

Some of the more common sources of phosphate contamination are:

Source water - many municipalities are now using varying forms of phosphate based chelating agents in an effort to preserve the water main lines from corrosion. These added chemicals **will** increase phosphate levels.

Pool chemicals - many of the stain and scale inhibitors, as well as metal sequestering agents are phosphonic/phosphoric acid based. This can be confirmed by checking MSDS sheets and product labels. Once these products are added to a pool or spa, they begin to deteriorate and will increase phosphate levels.

Environment - debris such as dust, pollen, dirt, and leaves will contribute to phosphate levels in pool and spa water.

Fertilizers - both lawn and general agricultural fertilizers will increase phosphate levels.

REMEMBER! - although phosphates from these sources are usually poly-phosphates or organically bound, all **will** degrade to "ortho", or reactive, phosphates with time.

WHY DOES MY POOL LEAK?

Autofills

The water for your swimming pool must always be above your skimmer inlet. While this may be stating the obvious, some not so obvious issues can occur.

Evaporation

Based on an 8x5 foot perimeter pool, a week without rainfall and a high heat of 100-120 degrees (TX, AZ, and NV) could cause a 3" minimum - 6" maximum water loss. Without an autofill, add one or two inches of water. With moderate heat of 95-100 degrees, the water loss is 1/2" minimum to 1 1/2" maximum. With low heat of 70-90 degrees, the water loss is 0" minimum to 1/2" maximum.

A daily loss of 1/8" or less is hard to qualify, but if the pool requires hose filling in moderate temperature or rainfall weeks, it is likely leaking.

Plaster pool: look for holes, they often have brown/black stains

Fiberglass pool: look for cracking

Vinyl pool: watch for stair frame screws, skimmer, light gasket, and main drain gasket

Leak to Level

In freeze climates, the owner is logically afraid of a broken underground pipe. These are relatively rare and can be confirmed by allowing the pool to leak to level, with and without the pump running. A pressure test is ordered from a pool company after it is determined the pool will leak below the skimmer.



Money saving search for leaks

Raise pool water two inches per day after allowing it to leak to level. Using your liquid Phenol red from your pH kit, squirt a few drops at any jet rings, ladder, stair step or skimmer trim. The red liquid will be drawn to the leak.



TYPES

of in-ground pools

Plaster/Vinyl/Fiberglass

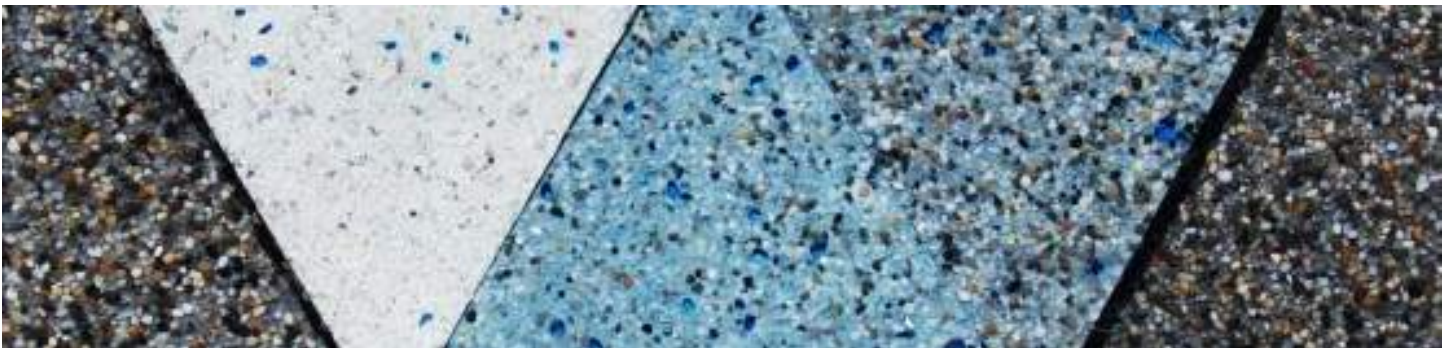
Plaster Pools

These pools are also referred to as plaster, granite, concrete, pebbletech, marble light, marcite, or diamondbrite pools. The dominant form of pool, particularly in the southern US and Europe is a rebar reinforced, plaster or concrete based shell and a top finish. The terms granite, pebbletech, marble light, and diamondbrite apply to the finish. Absent one of these finishes, ceramic tile or glass pools could be cared for in the same manner. Resurfacing these pools with fiberglass finish has been a growing trend over the last 20 years.

Plaster Types

Grey or white- These surfaces are the least expensive, but they have the shortest life and require the highest maintenance. Basically, they are portland cement, with or without a tint additive. For longer life stone, glass accents and other durable items have raised the life of the finish and widely expanded the color choice.

Pebble Tec® (Small stones in plaster)- The developer of the imitated small stone in the plaster has been Pebble Tec®, offering a multi color, more water resistant finish. 3M Diamond Brite and other stone finishes have become popular.



Operating Issues

- 1) These pools must never allow calcium hardness to fall below 200 ppm.
- 2) These pools must be brushed weekly in high season or employ a suction vacuum.
- 3) These pools will stain or bleach, require 7 to 10 year reapplication of the finish, and are the most amicable to attached custom water features.
- 4) These are the only pools which allow large, free form designs and multiple water features attached with one filtration and purification system.

Because they lend themselves to free form design, plaster pools will always be a dominant force in the swimming pool industry. In other markets, they are significantly more expensive to construct.

Vinyl Pools

Since 1980, the vinyl liner has made substantial inroads on the swimming pool industry and has become the dominant choice. In the northern markets, some have argued vinyl lined pools are crack resistant during below freezing weather. The 7 to 15 year window on vinyl replacement is less expensive than a replaster project. Vinyl Liner replacement can be as much as \$3000 to \$4000 less than a re-plaster in most North American markets.

90% or more of the northern U.S. pools are lined with vinyl, and these pools have recently begun showing up in Texas, Florida, and California.

Operating Issues

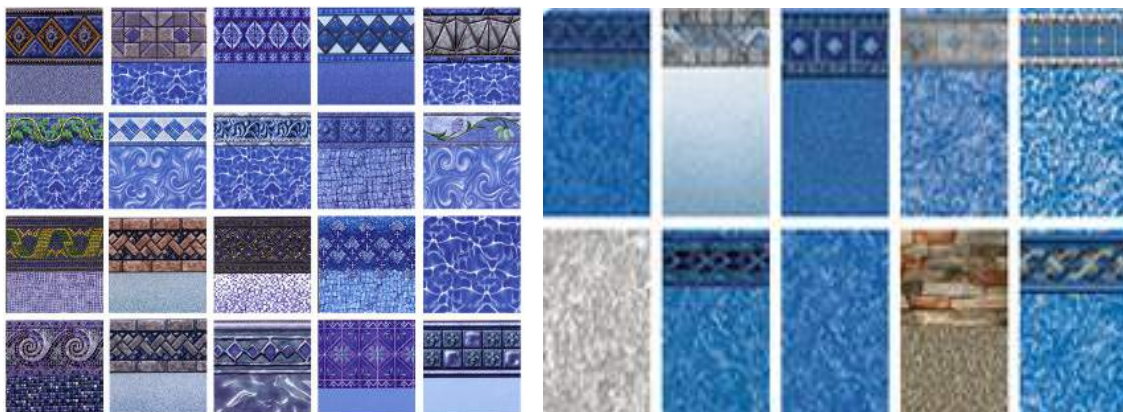
As with plaster pools, the calcium hardness should be maintained at about 200 ppm minimum and the pH should be maintained above 6.6 (7.2 if using chlorine or bromine). Sanitizer levels above 5.0 ppm (free chlorine) can bleach the liner, as can improper handling of chlorine or acid. Vinyl pools are more resistant to stains and less resistant to mold underneath the pool or damage from concentrated chemicals. To avoid mold, confirm all drainage flow from the house is directed away from the pool.

Maintenance Issues

Vinyl pools require little maintenance and have a 6 to 20 year life dependence on water chemistry. Liners are replaced at a cost of \$3000 to \$4000 and come in hundreds of colors. If your pool is built in a clay (vs. sand) soil environment, proper filling and drainage are needed to keep water from forming under the liner and giving you water mold issues.

Make certain ALL drainpipes are pointed away from the pool. If water is running toward your pool from the neighbor's higher elevation house, installing a French drain system may be necessary.

Vinyl pools do not require weekly brushing to avoid algae in high season but do have other issues. Shocking the pool with chlorine must be done with care to avoid bleaching and spotting. Distribute shock (liquid or solid) around the pool and emphasize the deep end. Dilute liquid acid with water in five gallon bucket and "pool" it in the deep end of the pool when adjusting pH down. Keep calcium above 200 ppm and pH above 6.6 to prevent the liner from becoming brittle before its tenth year after install.



Fiberglass Pools

Perhaps the fastest growing surface choice is a fiberglass pool. This trend is consistent with pools getting smaller and not having diving boards or deep ends. The entire shell is trucked in as one piece, limiting the size due to freight expenses and road restrictions.

Operating Issues

Whether it is an entire fiberglass shell or fiberglass applied over plaster, the fiberglass pool will generally require less maintenance if it has been properly installed. Usually, the smooth surface does not require brushing.

Maintenance Issues

Keeping calcium above 200 ppm and avoiding high sanitizer levels will keep this surface from staining or spotting. Fiberglass owners with well water may wish to put an iron filter on their outdoor swimming pool feed line. Use vitamin C tablets to remove spots or granular ascorbic acid if it is available, no more than one kilogram per 10,000 gallons.



SALTWATER POOLS



Salt water pools use salt-to-chlorine generators to generate chlorine gas. Saying this, salt water pools are not actually chlorine-free, it simply uses a chlorine generator to reduce the handling of chlorine. A wide range of salt chlorinators are available between \$600 and \$1800 and require the unit to be sized to the pool. The entire cell on salt water pools needs to be replaced every 3-5 years.



ABOVE GROUND POOLS



Above ground pools are a very popular choice for many reasons. Above ground pools are definitely the inexpensive option to owning your own swimming pool, and they come in a multitude of sizes and shapes to suit any budget. They are usually vinyl liner pools and should be expected to provide many years of enjoyment. Above ground pools are equipped with filtration and usually alternative sanitizers and filter medias are purchased separately. You can filter and sanitize the pool with whatever system is right for you: chlorine system, salt-to-chlorine generators, or ecosmarte copper ionization and oxidation for chemical free water.



MAINTENANCE ITEMS regardless of pool surface

WEEKLY TASKS FOR ALL POOLS

- Test pH
- Test sanitizer
- Empty skimmer basket
- Empty pump basket
- Vacuum all leaves
- Consider backwash (If pressure has risen on filter, clean the cartridge)

ANNUAL MAINTENANCE ITEMS: TESTS

- Test phosphates and remove with chemical
- Test calcium hardness and adjust
- Test cyanuric acid on chlorine pool

ANNUAL MAINTENANCE ITEMS: FILTER

- Replace cartridge (12 to 24 months life)
- Soak DE grids in acid/water (5 parts water, 1 part acid)
- Check bed depth on sand filter annually (2-3 times in souther markets, 1-2 times in northern markets):
 - Sand
 - ZEOLite
 - Glass

(Filter bed depth should be six to eight inches from the top of the filter and, if short, will result in murky water and/or increased chemical use).

In southern pools, these items will result in extra charges from the service. With northern pools, they can be ordered with an opening or closing of the pool (and also involve charges).

FILTERS the key to time and chemical savings



3 BASIC TYPES

Three basic types of filters exist for both above ground and in-ground swimming pools:

- Sand filter
- Diatomaceous earth
- Cartridge

It is important to confirm that the size of filter is adequate for your pool and your pool pump is correctly rated for your filter. Generally, the filter cannot be oversized (the bigger the better). An undersized filter will easily double your chemical use, double your time spent on water chemistry, and give you many days of murky water. Very few above ground pools are sold with an adequate filter, so make sure you double check yours is the correct size.

Sand Filter Size	Maximum U.S. Gallons
180 LBS	9,000
200 LBS	12,000
300 LBS	26,000
500 LBS	36,000
600 LBS	50,000
900 LBS	75,000

Pools with inadequate filters can either add a second filter or increase the size by replacing an existing filter. In the case of sand filters, an upgrade in the media itself may permit a marginally sized filter to successfully operate the pool. Media options will result in a specific micron removal with a properly sized pump.

Sand Filter Media Options	Microns Filtered
Quartz silica sand	50
ZEOLite	2-10*
Glass Media	2-5*

* With proper horsepower/ filter size combination

FILTER MEDIA

In soft water areas and with pools using a mineral purifier, many types of zeolites sold will be incompatible. Only after installation will you be able to determine if calcium hardness, copper/silver, or zinc is being removed from your pool. All zeolites are incompatible with metal

remover, flocculant, and clarifier. Zeolites will also load with phosphate if it is present in the pool water. Be cautious, some manufacturers do not acknowledge these issues.

In 2004, the pool industry was introduced to glass media. Though glass is the most

expensive option upfront, it has the lowest micron rating and longest life expectancy of all media types, making it the most cost effective type of media. Glass is available in multi-color or white, and may or may not come pre-sterilized.

Sand Filter Troubleshooting Chart	
Problem	Probable Fix
Valve handle is hard to move	Spider "O" ring
Water trickles out backwash hose	Spider "O" ring
Sand or media comes out of jets	Dirty filter/ Broken distributor
Sand or media comes out of hose	Bent or broken



SAND



ZEOLITE



GLASS

If any of these medias are found in the pool or backwash site glass; make sure that certain media have been installed in the filter properly with a pea gravel bed fully covering the laterals.

PUMPS

The 1 HP Rule

The HP rating of the swimming pool pump is most critical in successful operation of the pool and specific accessories. The most common misconception as consumers update pools with aftermarket pumps is that a 2 HP pump is superior to a 1 HP pump. A 2 HP pump will not function with a 300 LB sand filter, a 48 sq ft DE, or a 53 sq ft cartridge, the most popular builder sizes.

All pumps have a GPM rating, as do the filters. A 72 GPM 1 HP pump is the proper rating for the aforementioned filters and a 96 GPM 2 HP pump will require at least a 600 LB sand filter or a 72 sq ft DE filter.

While subtle issues exist related to the plumbing manifolds (1.5" pipe vs. 2" pipe), total feet of pipe between skimmer and the pump is also a consideration.

The exception to this are accessory water features and in floor cleaning systems, usually new construction issues only. The trend is to incorporate both a separate pump, and in many cases, a separate filter, which is always required for in floor cleaning systems.

Variable flow pumps, "Intelligent" engineering as the manufacturers call it, are not being marketed all through the United States. The mechanical track record and claimed energy savings of variable flow pumps are vague at best.

Two operating issues need to be considered beyond HP and variable speed or flow analysis:

- 1) The pool must circulate during daylight hours since algae are dormant at night.
- 2) Timing systems require the pool owner to be able to reprime their pump on occasion or pay for a service call if the pool fails to restart.
- 3) A rotary pump can run at the lowest RPM speed 1/8 HP for 24 hours and still use 75% less electricity.

Many builders run the pump and filter 24 hours to avoid these issues. This "off peak" circulation adds between \$10 and \$20 per month to the monthly electric bill at average U.S. rates.

The leading North American swimming pool pump manufacturers are Hayward, Sta-Rite, Pentair, Jandy and Jacuzzi, all with service and parts networks to support their customers.

Signs of a failing pump are: overheating (shutting the pool off), tripping the breaker, or cavitating the flow. Normally, this gives homeowners some advance warning. The pump consists of an electric motor, wet end, and basket. Because rebuilding the motor requires two trips and usually an outside vendor, most pool professionals will recommend replacement of the pump, or at least a brand new motor. Do-it-yourselfers may save half of their money or more with a motor rebuild only. They are unlikely to get the same useful life of replacement.



The NEW Trend: Rotary Pumps

“Greening your pool while keeping blue water”

Eliminates up to 80% of the KW to operate the pool.



Being the latest member of the IntelliFlo family, the IntelliFlo VS Speed Pump further refines the proven advancements that have characterized IntelliFlo pumps enabling them to outsell all the other competing variable speed pumps. With the features below, buying this product is definitely a super move.

Product Description

Digital controls that includes an 8 programmable speed setting with a built in timer allowing custom program of optimum speeds for specific tasks - filtering, cleaning, heating, waterfalls, spa jets etc.

Motor has an ultra-efficient permanent magnet design for reduced noise and vibration assuring greater efficiency and longer pump life. Spectacularly quieter operation - as low as 45 decibels making the pump 4 times quieter than most traditional pumps. Low average operating speed and totally enclosed fan cooled (TEFC) makes the pump the quietest on earth. Fully compatible with other brands of pool/spa controls systems for managing pump, water, lighting, heating, including IntelliTouch®, EasyTouch® and Sun-Touch®. 90% energy saving compared to traditional pumps saving thousands of dollars in energy costs over its lifetime. Safety Vacuum Release System (SVRS) ensures safety by sensing drainage and automatically shuts off the pump hence protecting it for longer life.

The IntelliFlo VS Variable Speed Pump is a real breakthrough in energy efficiency and service life. Many states (California and Arizona for example) are requiring two speed pumps and offer rebates to defray the higher initial cost.

ECOsmarte

Reuse the backwash water on your lawn



Get greener grass than your neighbor

The yard to the right is using regular El Paso city water, the “wetter” water to the left is oxygenated and ionized with ECOsmarte’s whole house water system.

You not only achieve the “greener” grass look, but you also use one half of the water your neighbors do. No impact on budget, high impact on curb appeal.



Glasspack Water Savings

DID YOU KNOW? If just 1/2 of the swimming pools in CA, FL, TX, or AZ that use silica sand switched to using Glasspack Media, EACH STATE WOULD SAVE 10 BILLION GALLONS of fresh water per year.

Backwash Monthly Instead of Weekly

-Glasspack® filters skin cells, blood cells and 70% of all bacteria such as coliform or ecoli. No need to “shock” or flocculate the pool as with sand or cartridge filters.

-Glasspack® contains no crystalline silica - resulting in better lung protection for employees and a far healthier environment. Silica is a TYPE 1 known aspirant carcinogen.

-Glasspack® is manufactured from 100% recycled glass, sterilized and machined like sugar.

-Glasspack® grains are amorphous, smooth particles that have higher attrition strength and do not permanently trap bacteria in cracks.

-Use of Glasspack® filter media will lower your consumption of chlorine and coagulants. Coagulants and metal removers are not compatible with ZEOLite and are compatible with glass.

-Glasspack® media is superior to DE and it will change your life if you manage your own filter.



Vacuums

Hand Vacuum

Skimmer Mount: TOP



Operation of Hand Vacuum:

Set up: The pool pole attaches to the vacuum head; the head is attached to one of the skimmers by using a vacuum hose. Make sure the vacuum hose you own is long enough to reach from the skimmer to the furthest end of your pool. Adjusting skimmer valves not in use with the vacuum may be needed for best results. Never vacuum through the filter, always vacuum to waste.

Helpful Hint: If your pool has two skimmers, close the one not supporting the vacuum one half turn to maximize your suction.

Suction Side

Skimmer Mount: FACE

Pressure Side Sweep: Separate Pump

If your pool has one skimmer only, vacuums such as Baracuda are not the vacuum for your pool. If you have a DE filter, this is also not the vacuum for your pool.

Robotic with Countdown Timer:

These DC voltage driven vacuums are the most expensive but arguably the best. Blue Diamond, Aquabot, Tigershark, and Dolphin Shark are the proven brands.

In-Floor and Pop-Up

In-Floor Cleaning Systems provide performance by systematically moving heavy debris toward your pool's main drains, while suspending the light debris, which are removed by the standard filtration process.



***hand vacuums may still be needed with other vacuum types**

Pool Lighting

There are many pool lighting options available in the pool industry today. Contact your pool professional to see what options may be available for your pool. Below are some of our favorites. All use DC voltage, LEDs, and require the water to be grounded in 2015 as the new U.L. Standard.



Many brands of sand filters require a pea gravel base to cover the water distribution laterals and this is not well documented by various replacement media sellers. Failure to cover the laterals with gravel on most Pentair, Jacuzzi, or Sta-Rite filters will result in the sand, ZEOLite, or glass plugging the

razor-like openings. In addition to plugged laterals, media will pass to the pool, filter bed depth will fall, and the filter media will channel. NO AMOUNT of chemical will clear the pool for more than a few days after this happens.

INSTALLING NEW MEDIA >



Sand filter lateral

Pea gravel must cover all laterals fully with glass or ZEOLite. Glass manufacturers, even though their material is machined to sugar-like consistency, are universal in their pea gravel bed requirement. Most ZEOLite suppliers do not document the gravel requirements.

Replacing the Sand

INSTALLATION INSTRUCTIONS



1. Remove tank cover. Cover the exposed vertical pipe.



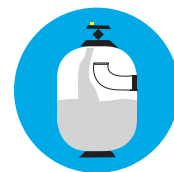
2. Remove the sand; use of wet-vac is helpful.



3. Check all piping for correct fit and defects. Cover laterals w/ pea gravel.



4. Add media to achieve specific filter bed depth. Put back the tank cover and introduce water.



5. Backwash until water is clear. (Please note: If using ZEOLite, the backwash process should take place after each bag is added).

Glass, ZEOLite, or 20 Quartz Silica Sand (regular sand will not work)

Sand - Every 3 years

ZEOLite - Every 3-5 years

Glass - Every 5-7 years

(Bacquacil users will need to change sand or ZEOLite every year)

Sand filters must plug and have pressure rise on their gauge to remove small particles from the pool. A functional pressure gauge is necessary to successfully operate the pool. It is highly recommended that pools with **slide valves** should upgrade to a multiport valve. Multiport valves give you full operation of a sand filter. A slide valve has

only two options- filter and backwash. A slide valve does not include the rinse feature. Without a rinse feature, it is impossible to properly backwash a sand filter to its maximum cleanliness. The rinse feature on the multiport valve is an intricate part of removing the particulate that has been collected in the filter, cleaning your pool properly.

BACKWASHING YOUR SAND FILTER >

Backwashing the pool should occur after 6 lb pressure rise on the gauge and prior to a 10 lb rise over starting pressure. The starting pressure must be recorded after a proper backwash. The gauge can be marked with a waterproof marker so any pool professional or family member will know the operating status of your filter.

The proper method to backwash the filter is shown below. **YOU MUST TURN THE PUMP OFF** between each movement on the multiport valve, or you will damage the “spider” O-ring inside the valve. The multiport valve should easily and distinctly lock into position.

When finished with the second backwash/ rinse cycle, the pump should be turned off and the

valve returned to the “filter” position. The pool should be operating at your starting pressure. The “recirculate” and “waste” settings are covered under **problem solving** and **vacuum** chapters of this book.

Backwashing too frequently will result in more chemical use and less water clarity with a sand filter. Any sand filtered pool that has gone 6-8 weeks without a pressure rise should backwash the pool regardless of pool clarity.

TWO COMPLETE CYCLES: FULLY PURGE THE MEDIA



1. Turn off pool pump
2. Set multiport valve to “backwash”
3. Turn on pool pump for 2 1/2 minutes
4. Turn off pool pump
5. Set multiport valve to “rinse.” Rinse to clear in-site glass (15 to 45 seconds)
6. Repeat this process

The diatomaceous earth filter for backwashing purposes operates on a similar principle to sand but will not require a pressure rise. The maximum pressure rise, usually 12-16 lbs, is more important with this platform to avoid damage to the filter itself, and early backwashing will not hurt the overall

filter performance. It may be prudent, for example, to backwash the filter if the gauge has a 4 lb rise and the owners or pool service will be gone for several days.

DE BACKWASHING: a diatomaceous earth filter

The use of the multiport valve is identical to a sand filter; you must turn off the pump between each valve handle movement. The DE platform requires **three** 2-minute backwashes followed by rinse to clear, usually less than 30 seconds.

The backwash of a DE filter is designed to knock down all powder and contaminant from the

grids. Softly slapping the side of the filter after each rinse cycle will yield optimum results as dirty powder drops to the bottom of the filter to be rinsed out.



Pentair Multiport Valve

DE FILTER TROUBLESHOOTING CHART

Symptom	Cause
Powder in the pool	<ul style="list-style-type: none"> - Hole in grids - Valve to separation tank is faulty or open - Too much powder in the filter
“Murky” water or Oil Slick:	<ul style="list-style-type: none"> - Not enough powder in filter - Grids need to be cleaned - Grid assembly is cracked - Breather cap plugged

Failure to get all used powder at the bottom of the filter will not allow new powder to coat the grids evenly. At least twice per year, the grids must be removed and soaked for trouble free performance.

A one hour soak in five parts water, one part muriatic acid and 1 lb TSP (Trisodium Phosphate). It is usually a good idea to hire a pool professional if this is your first swimming pool on your first DE filter.



The 60 sq ft DE filter typically contains six or seven fabric “grids” that must be perfectly maintained with the carriage assembly and grids soaked quarterly. The filter must be re-assembled squarely and with even tension on the cartridge.

ALTERNATIVE SANITIZERS

Chemicals

Chlorine is the dominant form of pool sanitation, but Bromine, Bacquacil, and Sodium Tetraborate sanitation have a statistical presence.

Those pools using an alternative form of chemical sanitation will most likely be required to drain the pool to convert it back to chlorine, OR install an alternative sanitizing device. The number of alternative chemical pools is falling dramatically while the percentage of pools with a sanitizing device is increasing.

Bromine

Bromine users will operate the pool by testing free bromine, total bromine, pH, calcium hardness, and totally alkalinity - all just as critical as chlorine.

Bromine users will typically use non-chlorine shock to respond to cloudy water and often need weekly algaecide treatment.

Bromine salts themselves typically cloud water. Movement to a copper sanitizing device will require draining the pool to avoid copper salts which can be toxic and can cloud the water.

Bromine has better microbe kill rates than chlorine on hot water. While bromine has become the dominant sanitizer for spas, very few pool companies have the larger packaging of bromine to support a swimming pool or employ the expertise to operate a bromine spa or pool.

Bacquacil (and private label bioguanides)

By far, the dominant chemical other than chlorine in swimming pools is bacquacil. The sanitation chemical itself (and the shock) is considerably less irritating than chlorine, but it is more expensive, and requires regular algaecide supplement and annual filter media change out. It also provides some economics on getting the alkalinity up and increasing the calcium hardness. Bacquacil is much less corrosive than chlorine or bromine, though some evidence shows that the more years that the water is in the pool, the more sanitation chemical are required, regardless of weather. Bacquacil users should consider draining and refilling the pool and changing out the filter media every 3 to 5 years (instead of the 7 to 10 year window with chlorine).

Sodium Tetraborate Pools: PROTEAM

The manufacturer of this patented system, The John Girvan Company, should be contacted directly for assistance in operating these pools and updating proprietary test kits. Materials are generally shipped from Florida.

ALTERNATIVE SANITIZING DEVICES

Numerous alternative devices, many dating back to the late 1980s, exist to reduce or eliminate the use of certain pool chemicals. Many of them completely eliminate the use of chlorine stabilizer, cyanuric acid, and the obvious human health issues associated with chemical use in pools and spas.

Ionization

The oldest methods involve copper or copper/silver ionization using ionic metals to kill algae, bacteria, and virus. Early Roman fountains and modern day wishing wells easily demonstrate the water clarity achieved from the stable part per million metal residuals. NASA legitimized this science in the 1960s by using ionization on three week Apollo missions to the moon when moon microbes were greatly feared. Only since 1999 have efficacy studies confirmed superior kill rates on Legionella, Polio Virus, Ecoli, and Coliform with the use of ionization. The issues with ionization, however, revolve around staining and the need for oxidation.

Ionization/Oxygen and Ionization/Ozone

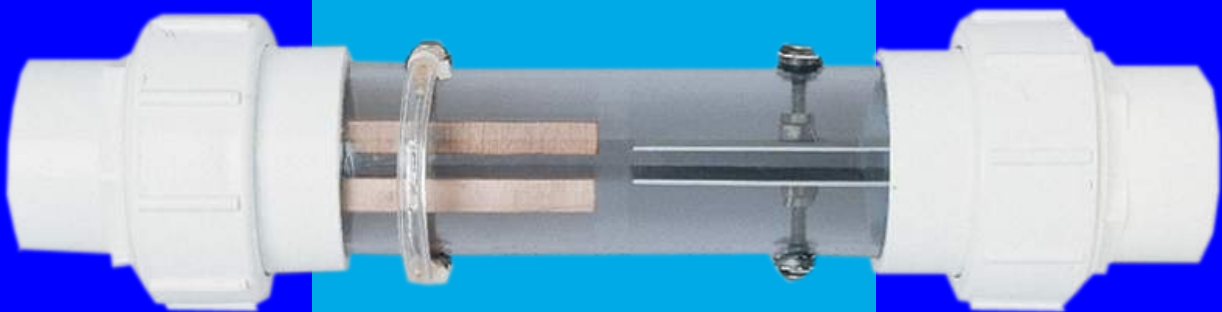
In swimming pool applications, ionization alone does not address body oils, uric acid, and other organic chemicals brought into the water by swimmers. Therefore an oxidation supplement or method is required to rid the water of these things.

The less expensive ionization products (\$800-\$1400) recommend the use of household bleach or non-chlorine shock on a regular basis to accomplish the needed oxidation (Caribbean Clear, Pioneer, Sigma, Challenger, Lifeguard). The more sophisticated and successful manufacturers will incorporate a second device (ozone or oxygen generators) to eliminate the regular use of halogen chemicals (Clearwater, Superior Aqua, Ecosmarte). These dual systems, while not necessarily doubling the cost (\$1900-\$4500), should be scrutinized, particularly if ozone is used to ensure proper sizing based on both the size of the pool and projected swimmer volume. Tens of thousands of pools operate without regular chemical added to the pool, a fact that North American pool professionals have acknowledged only after Wal-Mart, Sam's Club and Canadian Tire garnered over 30% of the swimming pool chemical business.

Ozone

Ozone has been the accepted chemical reduction standard in water treatment since the early 1900s. Ozone's short life, however, makes both oxidation supplements and algacide use a necessity. The main problem with ozone generators in residential applications is the cost of electricity and element replacement. Residential ozone generators require 24 hour circulation and annual bulb/element replacement.

Ozone generators are rated in grams per hour. 2-3 gram output is required to have an impact on the chemical demand of the pool.



AUTOCOVERS

Turn the key, and the pool is covered

A growing trend to cover pools with a retractable cover has occurred in North America. If your pool has such a cover, and you are experiencing problems, the following troubleshooting guide has been compiled using information from manufacturers.

TROUBLESHOOTING GUIDE: AUTOCOVERS		
Problem	Possible Cause	Solution
Cover will not move forward or will not reverse	<ol style="list-style-type: none"> 1. Circuit breaker or GFI is tripped 2. Water on cover 3. Water accumulated between roll-up tube and pool 4. Cover adhering to deck 5. Torque limiter loose 6. Motor needs service 	<ol style="list-style-type: none"> 1. Reset circuit breaker 2. Pump water from cover 3. Sweep water off cover 4. Lift cover and billow air under cover. Use replaceable welcome mat, etc., to break deck adhesion 5. Tighten both torque-limiter bolts 1/2 revolution until it engages 6. Call for service
Water leaking onto cover	<ol style="list-style-type: none"> 1. Cover caught on something sharp 2. Abrasion pinhole 	<ol style="list-style-type: none"> 1. Remove sharp object and use patch kit to repair
Cover retracts out of square (some unevenness may be unavoidable due to pool configuration)	<ol style="list-style-type: none"> 1. Rope length is unequal 2. Uneven drag on cover as it retracts off pool 	<ol style="list-style-type: none"> 1. Re-pin the rope onto the rope reel so the extra rope around the reels is exactly the same on both sides 2. Tighten rope reel brakes slightly. Do not overtighten.
Cover not even at end of pool	<ol style="list-style-type: none"> 1. Rope length is unequal 	<ol style="list-style-type: none"> 1. Re-pin the rope onto the rope reel so the extra rope around the reels is exactly the same on both sides
Cover seems to be running under stress	<ol style="list-style-type: none"> 1. Excess friction during operation 2. Cover adhering to deck 3. Debris in housing 4. Cover too tight 5. Brake too tight 	<ol style="list-style-type: none"> 1. Clean guides with hose. Clean all turning parts 2. Billow cover by lifting fabric to break adhesion 3. Clean housing of debris 4. Raise water level to mid-tile or replace cover 5. Loosen brake

Top Track (See page 35)

Track is mounted in the concrete deck. This is the only retrofit option unless you are prepared to replace your concrete deck.

Below Track (See below)

Track is built under the concrete deck with no exposed runners, over with a cantilevered edge...

Without entering into the debate it is not wise to use these covers as winter covers in a northern freeze climate, despite manufacturers' claims. A fabric replacement due to an ice tear is \$3,500 to \$5,000, excluded from their warranties. Investing \$1,500 to \$4,000 in a true safety cover is the ideal way to winterize an autocover pool, extending the life and simplifying the maintenance. Leaf stains accumulated in the fall can also ruin the appearance.

OPERATING ISSUES

Cover Pump

A small sump pump is required to pump water off of the cover, especially before opening it. A leaf blower or pressure washer also simplifies the cleaning process.

The manufacturers that recommend their autocovers for winter use expect the cover to be regularly pumped as water accumulates and before ice forms. They also expect you to pump it as ice melts. The fabric itself will become very dirty over winter months and must be cleaned each spring.

Sunlight

It is a good idea to frequently expose your pool to the UV sunlight, regardless of the sanitation methods used. Salt water generators, chlorine generators, and ozone generators will destroy the fabric and the track if the cover is not opened every day.

Heating the Pool

Keep the cover closed and realize your energy saving benefit with the autocover. Generally, two to four hours with a properly sized heater will raise the pool water temperature for planned swimming events. This permits the heater to be turned off or down on days when the homeowner knows there will be unlikely use of the pool.



WINTER CLOSING

Closing Northern Pools - Frozen Water

1. Test copper and pH.

Day of Closing

1. Drain water below skimmer level. You can achieve this by running your pump to waste through only the main drain.
2. Turn pump off. Disconnect power to electronic control box and remove lead wires from chamber. Store box indoors for the winter.
3. Lay out all winterization hardware (caps, gizmoz, etc.).
4. Unscrew return jets, stand-by with jet plugs.

Return Lines

1. Twist off ECOsmarte Electrode Chamber (store indoors). The 12" gap will be your "blow spot."
2. Using a shop-vacuum or other power blower, blow toward the return side of the piping from the "blow spot" with all returns open.
3. Close all return valves. Using the winter plugs, plug all jets finger-tight except the nearest jet to the pump. Open return line nearest pump and blow air through that line, from the "blow spot." Repeat this procedure for each return line, re-plugging each jet after water is purged.
4. Carefully pour one gallon RV anti-freeze through with shop-vacuum until you can see anti-freeze come out of the intended jet. Repeat this procedure for each line starting with the furthest jet and working toward pump.

Prior to Suction Side Winterization

1. Remove drain plug from hair and lint basket (sump). Allow to drain completely.
2. Remove drain cap from filter (if sand filter, remove smaller of two caps).

Skimmers

1. Close skimmer and main drain valves.
2. Working from the suction side of your pool piping, open and blow out skimmers, one at a time, from the nearest skimmer to the furthest. Close skimmer valves after blowing.
3. Pour one gallon of RV anti-freeze directly into each skimmer.
4. Plug skimmers. If gizmo is not used, leave an empty plastic anti-freeze jug in the skimmer cavity (plastic jug will absorb winter expansion).

Main Drain

1. With skimmer valves closed, open main drain valve.
2. Open hair and lint basket (sump) at pump. Remove basket. Replace drain plug.
3. Pour approximately two gallons of RV anti-freeze into hair and lint basket. Close basket cover.
4. Blow from suction side of "blow spot" with main drain valve open, until you can see small traces of anti-freeze entering the pool.
5. Close valve quickly.

SOUTHERN POOL CLOSING PROCEDURE

If you are located in a region where freezing water is not a concern, then lower pH to 7.2 (neutral) and raise sanitizer levels. There is no need to run the pump and filter everyday. However, you must run the pool if a frost warning is issued. Southern pool owners may adjust pH every 2 or 3 weeks in a non-circulating pool for maximum control.

Southern pool owners will most likely use an auto cover in their winterization strategy. “Swamping” a southern pool and cleaning it up in the spring makes little sense.

MISCELLANEOUS

- Stuff rag or sock in each end of “blow spot”. Rubber bind or duct tape rags in place.
- If you have a slide, a water-powered vacuum (Polaris, Kreepy Krauly, etc.), or a water-fill hose installed on your pool, they will need to be blown out and filled with anti-freeze. Use above procedure in most cases. Some slides, however, may need to be blown from the spot of disconnection.
- Set sand filter 7-way valve to the “winter” or “closed” position.
- Remove ladder and railings. Lift cover plate and unfasten 7/16” or 1/2” bolts.
- If diving board is greater than 8’ long and snow is expected, remove and store inside for the winter.
- Cover pool with winter cover. If water bag cover is used, fill water bags half full to prevent winter cracking. Also, allow the cover’s slack to fall into pool and anchor with as little on deck as possible (1 to 2 feet is ideal). This will prevent the cover from collapsing into the pool under a load of snow.



Safety Options



A safety cover, capable of supporting a deer, child, or moose, can be starched. Merlin Industries® Smart Mesh™ allows only water to pass through the cover. The straps allow the cover to rise if the ice rises and the anchors mount flush to the deck during swimming season. NOTE: Standard or 'Open Mesh' covers will add 10-20 hours for Spring clean up and as much as \$200 in chemicals.

Winterizing: Autocovers are not true safety or winter covers.

Regardless of whether you own an above or below track auto cover, you do not want to cleaning, fabric or track replacement that occurs in northern climates from ice damage. Even the manufacturers who recommend this usage expect you to pump off surplus water. An ice tear in the fabric sells for \$4,000. Cleaning the cover without the winter-accumulated dirt and tree tannins is also an easier



Top track required on free form pools



Below track is optimum for rectangular pools

It is a great concept model which permits attractive cantilever decking as well as a concrete lid system to hide tracks.



SEVEN SECRETS SALT WATER POOL SELLERS DON'T WANT YOU TO KNOW

SECRET #1

Salt water systems corrode the pool equipment.

The Facts - The salt itself has issues of attacking the cement in the plaster and deck materials. This is a relatively slow process when the salt levels are low. The salt also can kill any landscaping in or around the pool as well as in the backwash area.

If the sodium hypochlorite levels are too high, the corrosion is caused by the chlorine being produced by the electrolytic cell. Chlorine can bleach the test reagents, giving you a “false negative”, and people can grossly over-chlorinate their pool damaging equipment, the pool surface, lighting fixtures, and ladders. Over time the salt will attack any area the water evaporates at.

A common problem is corrosion at the ladder. The deck anchors are usually cast aluminum and the ladder should be stainless steel. The salt water will corrode the anchors overtime and a “safety event” will be pending.

Buyers should be aware that if you have salt water above 2800 ppm, (often 4000 to 5000 ppm), you will need to reseal your coping every year, especially if it is a porous stone like limestone or travertine. Otherwise, the salt will dry and start to etch the coping. Besides sealing the stone, it is also advisable and an added precaution to hose down the coping at the end of any swim day with fresh water. Although the salt water in the pool may not be corrosive at levels of 3000-3500 ppm, when that water hits the coping and evaporates, it leaves pure salt behind. The pure salt is corrosive and is the main cause of the corroding coping. Most autocover manufacturers now void their track warranty if a salt system is used.

Some pool builders are now refusing to build any salt water pools with cream limestone or taupe coping. Any customer that wants either coping for a salt water rock or gunnite pool must usually sign a release form. Pool builders have said that they have had to replace a significant amount of both these types of coping this past year. Cantilever designs simply disappear as the stone dissolves away.

SECRET #2

Salt water systems require chemicals almost every week.

The obvious weekly use of muriatic acid is combined with the not so obvious need to use cyanuric acid to guarantee your salt chlorine generator can achieve 1-3 ppm chlorine residual in your pool. Since salt water pools produce chlorine, the sanitizing effectiveness of the system is impacted by changes in temperature, bather load, sunlight and rainfall. CYANIDE based, the CYANURIC acid is euphemistically referred to as conditioner or stabilizer and must be maintained between 35 and 85 ppm. Stabilized levels over 100 are harmful to children, pets, older swimmers, the pool itself and of course the environment.

Occasional algaecide, clarifier, stain and scale control and shock will be needed with a salt chlorine pool (maybe slightly more than a stabilized “puck” pool) and only the handling of the solid chlorine is avoided. Numerous other sanitation devices will cut overall chemical use, a salt system may not.

SECRET #3

Salt water systems require cell replacement every 2 to 3 years at a cost of \$500-\$800.

With over 40 manufacturers in the salt water generator business the cell warranty ranges from 1 to 3 years and the replacement costs are from \$500 self-installed to \$800 installed by a dealer. Assuming the owner gets to the fourth year with the cell, salt can be one of the most expensive methods to sanitize the pool. If the cell does not make it through the third year, salt becomes the most expensive system in terms of operating cost.

SECRET #4

You must worry about the pH with a salt system and do regular maintenance or you will destroy the pool and have zero recourse.

The Fact - When the pH and alkalinity get out of balance, the chlorine is much less effective. The pH should be 7.4-7.6. Chlorinating with a salt water chlorinator is similar to chlorinating with liquid chlorine-- they both have a high pH (11.7). One common problem is that homeowners tend not to test their pools' pH and alkalinity enough. Unfortunately, too many builders and retailers sell these systems as a "set it and forget it" solution. Most people with salt systems will run their pH from 7.8-8.0. This is bad for two reasons: 1) the pool is in a scaling mode, and 2) the chlorine is locked up by the basicity of the higher pH. It is best to run between 7.4-7.6 when using chlorine. Lack of pH management can ruin the cell in less than 90 days, scaling up the swimming pool as well as the cell. "Improper chemical use" will void any warranty, a system employed by portable spa manufacturers on delaminated shells and first year heater failure.

SECRET #5

Salt systems are more harmful to human health than conventional chlorine, bromine or bioguanide chemicals.

With a salt system your skin will absorb sodium, salt, AND chlorine, versus just the halogen with a chemical sanitizer such as chlorine or bromine. Sodium absorption through the skin has long been known to present health risks at levels far below the 3000-5000 ppm levels salt chlorine generators require. For nearly 20 years people with high blood pressure, stroke history or other circulatory system issues have been asked to stop using their water softeners (at 200-400 ppm sodium in the water for just ten minutes in the shower) to avoid the heart mortality risks. The chlorine level and skin absorption of the chlorine is still based on the same 1-3 ppm chlorine residuals found, dioxin forms (as do chloramines) and the backwash water contains 3000 ppm or more chlorides.

SECRET #6

Salt systems are damaging to the environment and have been banned on all pools in areas such as Los Angeles County.

While the "Ban the Brine" movement may have not picked up much steam in recent years, individual counties banning chloride discharge such as Livingston County, Michigan or specific bans on salt water chlorine generators in Los Angeles County, California have gotten regional attention. Those existing Los Angeles area salt water generators when the ordinance was passed are NOT "grandfathered" in.

SECRET #7

One size does not fit all and salt generators use both high voltage AND high amperage outputs.

The Facts - It is essential when selecting a salt chlorinator to oversize the unit for your pool. You are better off having a chlorinator too large for your pool, one that is undersized is a complete waste of money. A chlorinator too large can be turned back or run for less time each day, making the cell last longer. A unit too small will mean algae problems later on if you don't run it for longer periods each day or add extra chlorine on a regular basis. The high amperage output of the cell will add between 500 to 1000 watts per day or 1.0 KW to 1.5 KW to your electric demand and monthly bill, at .11¢ per watt, this is \$5 to \$11 every month. Electric rates range from .11¢ to .19¢ per KW and will not likely decrease in price.

There is no maintenance on a salt water pool.

Fact - All salt water generator cells require cleaning every 90 days. This must be carried out before the calcium build up within the cell housing becomes one big block. If not cleaned for six months, four expensive things occur, (even with the unit turned off the scale still forms):

The cell housing breaks when you attempt to clean it.

The cell life shortens as the high voltage/amperage cannot penetrate the scale on the plates.

The pool becomes a swamp when the cell scales up.

The electronic box blows - due to scale on the cell or salt ppm above 5000 in the pool.

It is also very important to watch the salt level in the pool. A low salt level (less than 2000 ppm) will cause oxygen production and damage the platinum group metals on the cell anode, therefore, shortening the life of the cell. It is recommended that you try to keep the salt level at the higher end of the manufacturer's scale, for your specific model.

With a salt water pool, the owner MUST maintain a proper pH or the pool will scale, stain brown and destroy the cell. Also cyanuric acid levels must be maintained or the chlorine will quickly dissipate out of the pool.

Before you buy a device and throw 200 to 500lbs of salt in your pool, remember an old term - "Salting the Earth", 2000 years ago mankind knew better.

Manufacturers and their contact information

Manufacturer	Product Categories
3M/Industrial Business Phone: (651) 733-6486	Adhesives, Concrete
A.O. Smith Phone: (937) 667-2431 www.aosmithmotors.com	Pump Motors
ABER Hot Tub Mfg. Phone: (800) 263-7727 www.aberhottubs.com	Spas
Acu-Trol (Now Hayward) Phone: (800) 2734667 www.acu-trol.com	Chemical Controllers, Controls, Programmable Controls, Flow, pH ORP Meters
Acura Spa Systems, Inc. Phone: (951) 684-6667 www.acuraspa.com	Electromechanical Controls, Spa Heaters, Spa Pillows, Spa Pumps
Air Energy Heat Pumps Phone: (800) 334-4328 www.air-energy.com	Heat Pumps, Above-ground Pool Heaters, Spa and Hot Tub Heaters
Alaglas Swimming Pools Phone: (877) 655-7179 www.alaglas.com	Fiberglass Pools, Pool Lighting, Water Features, Spas, Kiddie Pools
Alden Leeds, Inc. Phone: (800) 822-5387 www.aldenleeds.com	Algaecides, Antifreeze, Bromine, Pool and Spa Chemicals
Aldrich Co. Phone: (309) 695-2311 www.aldrichco.com	
All Valley Solar Phone: (323) 850-0720 www.allvalleysolar.com	Solar Equipment
ALL-PRO a Scheu Co. Phone: (800) 325-7057 www.allpro-heaters.com	Above-ground Pool Heaters, Heaters Accessories
Aloha Fiberglass Pools Phone: (800) 786-2318 www.alohafiberglasspools.com	Fiberglass Pools, Lighting, Tile, Mosaics, Pool Covers, Pool Fences

Manufacturers and their contact information

Manufacturer	Product Categories
ALPS Spas Phone: (800) 733-7665 www.alps-spas.com	Above-ground Pool, In-ground Vinyl Liner, Portable Spa
American Fiberglass Pools Phone: (800) 324-7665 www.americanfiberglasspools.com	Fiberglass Pools, Spas, Diving Pools, Swim Spas
American Leak Detection, Inc. Phone: (800) 755-6697 www.americanleakdetection.com	Leak Detection, Leak Repair
Aqua Creek Products, LLC Phone: (888) 687-3552 www.aquacreek.com	Grate Drain Covers, Pool Filters, In-Ground Pool Steps
Aqua Jet, LLC Phone: (800) 221-1750 www.aquaproducts.com/aqua	Automatic Pool Cleaners, Robotic Pool Equipment
Aqua Pro Systems Phone: (877) 278-2797 www.ecoaquapro.com	Pumps, Filters, Heat Pumps, Air Blowers, Chlorine Generators
Aqua Products Phone: (800) 221-1750 www.aquabot.com	Robotic Pool Cleaners
Aqua Vac Systems, Inc. Phone: (800) 786-7751 www.aquavacsystems.com	Automatic Pool Cleaners, Robotic Pool Equipment
AquaCal, Inc. Phone: (800) 786-7751 www.aquacal.com	Heat Pumps, Spa and Hot Tub Heater
AquaCheck Pool and Spa Test Trips Phone: (800) 548-4381 www.aquacheck.com	Test Kits, Water Analysis
Aquamatic Cover Systems Phone: (800) 262-4044 www.aquamatic.com	Pool Covers, Spa Covers
Aquascape Design, Inc. Phone (800) 306-6227 www.aquasapedesign.com	Water Gardens/Ponds, Waterfalls

Manufacturers and their contact information

Manufacturer	Product Categories
Aquatemp Products Corp. Phone: (310) 225-3333 www.aquatemp.com	Solar Equipment
Aquatherm, Inc. Phone: (800) 535-6307 www.warmwater.com	Above-ground Pool Heaters, In-ground Pool Heaters, Solar Heaters
Arch Chemicals, Inc. Phone: (800) 478-5727 www.archchemicals.com	Algaecides, Pool Chemicals, pH Adjusters, Winterizing Products
AstralPool USA Phone: (904) 378-0999 www.astralpoolusa.com	Pumps, Filters, Heaters, Cleaners, Sanitization
AstralPool USA Phone: (904) 378-0999 www.astralpoolusa.com	Pumps, Filters, Heaters, Cleaners, Sanitization
Automatic Pool Covers, Inc. Phone: (800) 878-5789 www.automaticpoolcovers.net	Automatic Pool Covers, Safety Pool Covers
AutoPilot Systems, Inc. Phone: (800) 922-6246 www.autopilot.com	Bromine Generators, Chlorine Generators
Badu SwimJet Systems Phone: (800) 223-8538 www.badujet.com	Water Treadmills
Barrier Reef Pools Phone: (888) 457-6657 www.brpoolsusa.com	Fiberglass Pools
Bio-Dex Laboratories Phone: (800) 617-3477 www.bio-dex.com	Algaecides, Acid Washing Equipment, Clarifiers, Pool and Spa Chemicals
BioGuard Pool and Spa Products Phone: (800) 859-7946 www.bioguard.com	Algaecides, Chlorine Shock, Clarifiers, Pool and Spa Chemicals
BioLab, Inc. Phone: (678) 502-4000 www.biolabinc.com	Algaecides, Chlorine Shock, Clarifiers, Pool and Spa Chemicals

Manufacturers and their contact information

Manufacturer	Product Categories
Blue Haven Pools www.bluehaven.com	Gunitite Pools, Fiberglass Pools, Vinyl Liner Pools, Filters, Pumps, Heaters, Cleaners, Ozonators, Sanitizers
Blue Hawaiian Fiberglass Pools Phone: (888) 840-7699 www.bluehawaiianfiberglasspools.com	Fiberglass Pools, Wading Pools, Swim Spas
Caldera Spas Phone: (800) 999-4688 x8432 www.calderaspas.com	Spas, Spa Covers & Cover Lifters, Spa Steps, Water Chemicals, Water Testers, Spa Accesso-
Cantar/Polyair Corp. Phone: (800) 448-2343 www.cantar.com	Fences, Winter Covers
Carefree Clearwater, Ltd. Phone: (800) 762-0647 www.swimcsi.com	Algaecides, Anodes, Sacrificial Catalytic Purifiers, Ionizers, Mineral Purifiers
Caretaker Systems, Inc. Phone: (800) 762-0647 www.swimcsi.com	Alarms, Gate Doors, Automatic Pool Cleaners, Pool Plans, Fittings
Catalina Spas Phone: (951) 940-4556 www.catalinaspas.com	Swim Spas, Hot Tubs, Gazebos, Spa Covers, Spa Features
CCSI International, Inc. Phone: (800) 537-8231 www.ccsiusa.com	Sun Rooms, Pool and Spa Enclosures, Skylights
CGT Pool Liners Phone: (519) 623-1633 www.cgtpoolliners.com	Vinyl Pool Liners
Chemical Automation Technology Phone: (800) 657-2287 www.chemauto.com	Chemical Controllers, pH Meters and Controls, Water Chemistry Sensors, Water Analysis Equipment
Chemtrol, Div. of Santa Barbara Control Systems Phone: (800) 621-2279 www.sbcontrol.com	Water Analysis Equipment, Water Analysis Software, Chemical Controllers, pH Meters and Controls, Sater Chemistry Sensors
ChlorMatic Phone: (800) 447-2838 www.clormatic.com	Chlorinators, Chlorine Generators, Heat Exchangers, Commercial Pool Equipment

Manufacturers and their contact information

Manufacturer	Product Categories
Clayton and Lambert Phone: (800) 626-5819 www.claytonlambert.com	Stainless Steel/Steel Pool Walls, In-ground Spas, In-ground Vinyl Liner Pools
ClearWater Enviro Technologies, Inc. Phone: (800) 756-7946 www.clearwaterpoolsystems.com	Antiscale, Water Conditioner, Ionizers, Ozone Generators, Scale Controls
ClearWater Tech, LLC Phone: (800) 262-0203 www.cwtozone.com	Ozone Generators, Ozone Injectors
Coates Heater Company, Inc. Phone: (253) 872-7256 www.coatesheater.com	Electric Pool & Spa Heaters, Boiler Parts
Confer Plastics, Inc. Phone: (800) 635-3213 www.conferplastics.com	Pool Ladders, Pool & Spa Steps, Spa Bars & Pads
Consolidated Pool and Spa Industries, Inc. Phone: (877) 464-6496 www.consolidatedpool.com	Pool Lighting, Spa Lighting, Above-Ground Pool Lights, Heaters, Vacuums, Spa Ozonators
Cover Valet Phone: (800) 730-7727 www.covervalet.com	Spa Cover Lifters, Spa Steps, Spa Rails, Spa Accessories
Cover-Pools, Inc. Phone: (800) 447-2838 www.coverpools.com	Pool Enclosures, Above-ground/In-ground Automatic Pool Covers, Vinyl Repair Kits
CoverLogix Advanced Safety Cover Systems Phone: (855) 992-6837 www.coverlogix.com	Safety Covers
Coverstar, Inc. Phone: (800) 617-7283 www.coverstar.com	Automatic Pool Covers, In-Ground Pool Covers, Spa Covers
Covertech Phone: (800) 837-8961 www.covertechfab.com	Insulation, Above-ground/In-ground Pool Covers, Solar Blankets, Water Bags
Crestwood Pools Phone: (607) 786-0010 www.crestwoodpools.com	Above-Ground Pools, Vinyl Liners, Ionizers, Pool Covers, Walk-In Stairs

Manufacturers and their contact information

Manufacturer	Product Categories
Custom Fiberglass Pools www.custom-fiberglasspools.com	Fiberglass Pools
Del Ozone Phone: (800) 676-1335 www.delozone.com	Air injectors, Clarifiers, ORP Meters, Ozone Generators, Commercial Pool Equipment
Dolphin Fiberglass Pools Phone: (609) 965-5188 www.dolphinindustriesnj.com	Fiberglass Pools, Spas
Doughboy Recreational Phone: (662) 536-4333 www.doughboy-pools.com	Automatic Suction Pool Cleaners, Filters, Cartridges, Above-ground Pool Ladders, Liners
Earth Science Laboratories, Inc. Phone: (800) 257-9283 www.pristineblue.com	Algaecides, Pool and Spa Chemicals, Scale Control, Test Kits, Nonchlorine Shocking Agents
Eco-Matic Salt Water Pool Systems Phone: (800) 881-2284 www.ecomatic.com	Algaecides, Bromine Generators, Chlorine Shocking Agents, Chlorine Generators
ECOsmarte Planet Friendly, Inc. Phone: (800) 466-7946 www.ecosmarte.com	Ionizers, Oxygen Generators, Alternative Filter Media
Enersol Solar Products Phone: (800) 884-6444 www.enersol.com	Solar Heater, Solar Collectors, Solar Equipment
Environmental Pool Systems, Inc. Phone: (800) 514-7051	Dehumidifiers, Pool Enclosures, Commercial Pool Equipment
Esther Williams Swimming Pools Phone: (800) 235-0185 www.estherwilliamspools.com	Above-ground Pools, Decking, Ladders, Fiber-Optic Lights
Fantasy Spas Phone: (888) 961-7727 www.fantasy-spas.com	Spas, Spa Steps, Spa Cover Lifters, Spa Lights, Ozonators
Feherguard Products, Ltd. Phone: (905) 876-4766 www.feherguard.com	Tile and Vinyl Adhesives, Pool and Spa Ladders, Repair Kits

Manufacturers and their contact information

Manufacturer	Product Categories
Fiberstars Phone: (888) 704-2276 www.fiberstars.com	Fountains, Lights, Waterfalls
Fibre Tech, Inc. Phone: (800) 3963-7283 www.poolpreserver.com	Fiberglass Pools, Wading Pools, Swim Spas
Focus Temp International Phone: (405) 796-4333 www.focustemp.com	Heat Exchangers, Heat Pumps
Fort Wayne Pool, Inc. Phone: (219) 432-8731 www.surfthepool.com	Aluminum Coping, Cover Fabrics, Injection Molding, Foam Pool Walls, Steel Pool Walls, Steps
Freeflow Spas Phone: (888) 961-7727 www.freeflowspas.com	Spas
Garrett Liners, Inc. Phone: (800) 222-3650 www.garrettliners.com	Garden/Ponds Water, Hot Tub and Pool Liners, Vinyl Repair Kits
Gladon Company, Inc. Phone: (877) 445-2366 www.gladon.com	Pool Pads, Pool Coves
GLB Pool and Spa Phone: (800) 445-2059 www.GLBPoolSpa.com	Algaecides, Pool and Spa Chemicals, Enzymes, Winterizing Products
Goldline Controls, Inc. Phone: (800) 343-0826 www.goldlinecontrols.com	Chlorine Generators, Freeze-Protection Controls, Programmable Controls
Guardian Pool Fence Systems, Inc. Phone: (800) 366-7233 www.guardianpoolfence.com	Pool Enclosures, Fences
Hanna Instruments, Inc. Phone: (800) 426-6287 www.hannainst.com	Chemical Controllers, Programmable Controls, ORP Meters, Water Analysis Equipment
Haviland Enterprises, Inc. Phone: (800) 456-1134 www.havilandusa.com	Pool & Spa Chemicals, Pool Hoses

Manufacturers and their contact information

Manufacturer	Product Categories
Hayward Pool Products, Inc. Phone: (888) 429-9273 www.haywardnet.com	Automatic Suction Pool Cleaners, Filters, Heaters, Pumps
Heliocol Solar Pool Heating Phone: (800) 797-6527 www.helicol.com	Heat Exchangers, Above-ground/In-ground Pool heaters, Spa and Hot Tub Heaters, Solar Equipment
Hutchinson Fiberglass Pools & Spas Phone: (609) 361-0202 www.hutchisonpools.com	Fiberglass Pools, Spas, Cascades, Safety Covers, Lighting
Hydrotech Pool and Spa Products Phone: (800) 959-7946	Algae and Spot Remover, Algaecides, Pool and Spa Chemicals, Filter Cleaners
Industrial Test Systems, Inc. Phone: (800) 861-9712 www.sensafe.com	Water Test Kits, Visual Water Test Strips, Digital Water Testers
Inter-Fab, Inc. Phone: (800) 737-5386 www.inter-fab.com	Benches, Water Garden/Ponds, Fountains, Handrails, Waterfalls, Ladders, Slides
Intex Recreation Corp. Phone: (800) 234-6839 www.intexcorp.com	Above-Ground Pools & Accessories, Inflatables, Pool & Swim Toys, Pool Lounges, Pumps, Filters,
Jack's Magic Phone: (800) 348-1656 www.jacksmagic.com	Algae and Spot Remover, Algaecides, Chlorine Removers, Rust Stains Removers, Concrete Cleaners
Jacuzzi Pool Equipment Phone: (866) 370-2664	Cartridge, D.E. Pressure, Gravel/Sand Filters, Lights, Pump, Tanks
Kafco Manufacturing Limited Phone: (888) 721-7665 www.kafko.com	Aluminum Coping, Pool Covers, Skimmer Baskets, Steps, Vinyl Liners
King Technology, Inc. PHone: (800) 222-0169 www.kingtechnology.com	Floating Chemical Feeders, In-line Chemical Feeders, Pool and Spa Chemicals, Chlorinators
KoolGrips LLC. Phone: (877) 445-6654 www.koolgrips.com	Covers for Pool & Spa Handrails & Ladders

Manufacturers and their contact information

Manufacturer	Product Categories
<p>LaMotte Co. Phone: (800) 344-3100 www.lamotte.com</p>	<p>Water Analysis Software, ORP Meters, pH Controls and Meters, TDS Meters, Test Kits, Labs</p>
<p>Latham Pool Products, Inc. Phone: (800) 833-3800 www.lathampool.com</p>	<p>Fiberglass Pools, Vinyl Liner Pools, Steel Pools, Polymer Pools, Above Ground Pools, Automatic Pool Covers, Safety Covers, Pool Liners, Steps</p>
<p>Leisure Concepts Phone: (800) 469-2428 www.leisureconcepts.com</p>	<p>Spa Cover Lifts, Spa Steps, Spa Covers, Spa Accessories</p>
<p>Leisure Pools Phone: 855-85-SPLASH www.leisurepoolsonline.com</p>	<p>Fiberglass Pools, Pumps, Filters, Pool Covers, Pool Cleaners, Lighting</p>
<p>Liberty Composite Pools www.libertycompositepools.com</p>	<p>Fiberglass Pools, Pool Tile</p>
<p>Life Saver Pool Fence Systems, Inc. Phone: (800) 282-3836 www.poolfence.com</p>	<p>Pool Alarms, Fences</p>
<p>Lifeguard Purification Phone: (800) 678-7439 www.lifeguardsystems.com</p>	<p>Catalytic Purifiers, Programmable Controls, Ionizers, pH Adjusters, Controls, Meters</p>
<p>Lochinvar, LLC Phone: (615) 889-8900 www.lochinvar.com</p>	<p>Pool & Spa Heaters, Boilers</p>
<p>LOOP-LOC, Ltd. Phone: (800) 562-5667 www.looploc.com</p>	<p>Cover Fabrics, Pool Covers, Safety Covers</p>
<p>LoneStar Fiberglass Pools Phone: (866) 471-6900 www.lonestarfiberglasspools.com</p>	<p>Fiberglass Pools, Pool Slides, Pool Games, Pool Cleaners, Pumps, Filters, Feeders, Pool Tile</p>
<p>Maytronics Group Phone: (888) 365-7446 www.maytronics.com</p>	<p>Robotic Pool Cleaners, Pool Covers, Pool Alarms</p>
<p>Mazzei Injector Corp. Phone: (661) 363-6500 www.mazzei.com</p>	<p>Ozone Injectors, Venturi Injectors</p>

Manufacturers and their contact information

Manufacturer	Product Categories
Merlin Industries Phone: (800) 289-1836 www.merlinindustries.com	Covers, Fences, Liners, Swim Training Equipment, Safety Covers
Miami Filter Phone: (888) 642-6482 www.miamifilter.com	Pool Filters, Commercial Pool Equipment
Micro Pure Phone: (780) 452-1577 www.micropure.com	Filter Bags, Cartridges, Media, ZEOLite, First Aid Equipment
N. Jonas and Co., Inc. Phone: (800) 523-6533 www.njonas.com	Algae and Spot Remover, Algaecides, Anti-freeze, Antiscale, Pool and Spa Chemicals
Natural Chemistry, Inc. Phone: (203) 295-2300 www.naturalchemistry.com	Pool and Spa Chemicals, controllers, Enzymes, Test Kits
Oasis Pool Products www.oasisswimmingpoolproducts.com	Steel Pools & Spas, Polymer Pools & Spas, Vinyl Liners, Safety Covers, Automatic Covers, Pool
Ocean Reef Pools www.oceanreefpools.com.au	Fiberglass Pools, Pumps, Filters, Heaters, Cleaners, Lighting, Water Features, Sanitization
Pacific Industries, Inc. Phone: (800) 833-3800 www.pacificpools.com	Aluminum Coping, PVC Coping, Pool Covers, Walls, Safety Covers, Diving Towers and Stands, Overflow Systems
Paramount Pool and Spa Systems Phone: (800) 621-5886 www.1paramount.com	In-Floor Cleaning Systems, Purifiers, Lighting, Automatic Skimmers
Pebble Technology, Inc. Phone: (800) 937-5058 www.pebbletec.com	Chlorintors, Pool Coating and Finishes
Pentair Pool Products, Inc. Phone: (800) 831-7133 www.pentairpool.com	Salt Water Chlorinators, Programmable Controls, Filters, Heat Pumps, Heaters, Pumps, Lights, Skimmers
Plastimayd Corp. Phone: (800) 348-2600 www.plastimayd.com	Vinyl Adhesives, PVC Coping, Domes, Liners, Covers, Repair Kits

Manufacturers and their contact information

Manufacturer	Product Categories
Polaris Pool Systems Phone: (800) 348-2600 www.polarispoolsystems.com	Air Blowers, Automatic Pool Cleaners, Chemical Controllers, Spa Chemicals, Chlorinators, Fountains, Spa Vacuums
Pool Cover Specialists Nat.'l, Inc. Phone: (800) 369-5152 www.powertrackcovers.com	Covers, Cover-Removal Systems, Safety Covers, Spa Covers, Pumps
Pool Patch Phone: 800-588-4008 www.poolpatch.com	Pool Plaster, Pebble, Tile, and Deck Repair Kits, Pool Skimmers, Pool Cleaners, Automatic Pool Brushes
Protect-A-Child Pool Fence Systems Phone: (800) 992-2206 www.protectachild.com	Fences
Radiant Pools Phone: (800) 723-4268 www.radiantpools.com	Above-Ground Pools, In-Ground Pools, Energy Efficient Pools
Raypak, Inc. Phone: (805) 278-5300 www.raypak.com	Electromechanical Controls, Heat Pumps, Heaters
Riviera Fiberglass Pools www.rivierafiberglasspools.com	Fiberglass Pools, Pool Covers, Spas, Splash Pads, Swim Spas, Swim Gyms
S.R. Smith Phone: (888) 677-7776 www.srsmith.com	Anchor Sockets, Diving Stands, Boards and Towers, Slides, Pool Toys and Games, Ladders, Rail Goods
Saftron Phone: (305) 233-5511 www.saftron.com	Pool & Spa Rails, Ladders, Safety & Exercise Bars, Accessories
San Juan Products, Inc. Phone: (800) 535-7946 www.sanjuanpools.com	Fiberglass Pools, Spa Shells, Spa Gelcoat, Swim Spas
Sentry Pool, Inc. Phone: (800) 443-8625 www.sentrypool.com	Aluminum Coping, PVC Coping, Pool Walls, Swim Spas
Sharkline Pools Phone: (631) 951-9800 www.sharkline.com	Above-Ground Pools, Liners, Decks, Ladders, Fences







Manufacturers and their contact information

Manufacturer	Product Categories
Silbrico Corp. Phone: (800) 323-4287 www.silbrico.com	D.D. Alternative Filter Media, Perlite Filter Media
SmartPool, Inc. Phone: (888) 560-7665 www.smartpool.com	Gate/Door Alarms, Pool Alarms, Solar Heaters, Lights, Solar Equipment, Robotic Pool Cleaners
Speck Pumps Phone: (800) 223-8538 www.usa.speck-pumps.com	Pool and Spa Equipment Packs, Spa Filters, Swim Jets, Pumps, Skimmers, Multiport Valves
Splash SuperPools Phone: (800) 927-7527 www.splashpools.com	Pool Decking, Ladders, Portable Pools and Spas
Splash-A-Round Pools Phone: (909) 980-7709 www.splasharoundpools.com	Above-Ground Pools, Soft-Sided Pools, Spas, Automatic Pool Cleaners, Solar Heat Squares, Test Kits, Skimmers, Pool Brushes, Thermometers
Sun Fiberglass Pools Phone: 1-800-764-7946 www.sunpools.com	Fiberglass Pools
Sweep Fins Phone: (800) 588-4008 www.sweepfins.com	Automatic Pool Brushes
Swimcraft, Inc. Phone: (260) 665-3360 www.swimcraftinc.com	Fiberglass Pools, Pool Walls, Pool Steps
Swimline, Corp www.swimline.com	In-Ground & Above-Ground Pool Liners, Pool Covers, Winter Covers, Leaf Nets, Inflatables, Toys & Games, Accessories
Thursday Pools Phone: (877) 929-7665 www.thursdaypools.com	Fiberglass Pools
Trevi Pools, Inc. Phone: (888) 777-0447 www.etrevi.com	Pool Liners, Walls Canada's Largest
Trilogy Pools Phone: (931) 438-4744 www.trilogypools.com	Fiberglass Pools, Pool Covers, Pool Lighting







Manufacturers and their contact information

Manufacturer	Product Categories
United Chemical Corp. Phone: (800) 524-5550 www.swimpool.com	Pool Chemicals, Algaecides, Alkalines, Bromine, Clarifiers, Filter Cleaners, pH Adjuster, Scale Controls
Viking Pools, Inc. Phone: (800) 854-7665 www.vikingpools.com	Fiberglass Pools, Spa Shells, Swim Spas
VynAll Pool Products Phone: (800) 553-5320 www.vynall.com	Vinyl Liners
Water World Fiberglass Pools Phone: (800) 596-6224 www.waterworldpools.us	Fiberglass Pools, Spas
Waterpik Technologies Phone: (800) 227-1442 www.jandy.com	Chlorine Generators, Programmable Contros, Filters, Heaters Lights, Valves, Waterfalls
Waterway Plastics Phone: (805) 981-0261 www.waterwayplastics.com	Air Blowers, Filters, Injection Molding, Spa Lights, Main Drains, Spa Jets, Pump, Skimmers
Watkins Manufacturing Corporation Phone: (800) 999-4688 x8432 www.hot.spring.com	Spas
Zeotech Corp. Phone: (800) 575-7887 www.zeotechcorp.com	D.E. Alternative Filter Media, ZEOLite Filter Media
Zodiac Pool Systems, Inc. Phone: (800) 822-7933 www.zodiacpoolsystems.com	Pumps, Filters, Heaters, Automatic Pool Cleaners, Sanitizers, Lighting, Pool Covers, Valves, Water Designs, Pool Accessories



Apps

Photo	App Name	Description	Price	Retail or Wholesale?	Interactive?
	Insta-Link Water Testing	Insta-Link is a free app that uses a special pool test strip to help you manage your pool. The app takes a photo of the test strip, then tells you exactly what chemicals you need to add! No hardware needed, but the test strips are available at the above link.	\$0	Both	Yes
	Nimbus Pool Doctor	Nimbus pool doctor helps users balance the chemicals in their pool, and keeps a record of the treatments that they have completed in the past. It is a simple app that helps you as a pool owner balance the chemistry of your pool.	\$9.99	Both	No
	Pool Calculator	Pool-Calculator does just what the name implies! It does the complex pool calculations for you. All you need to do is input accurate information about your pool (size, chem readings, etc) and it will tell you how much of each chemical to use.	\$4.99	Both	Yes
	Pool Boy Pro	Pool Boy Pro includes multiple calculators, and charts so you can see the change in readings over time.	\$2.99	Both	No
	The Pool Monitor Free	Pool Monitor Free is a free app (duh!) that helps you keep track of your pool readings, and helps calculate the correct chemical inputs for your pool.	\$3.99	Both	Yes
	NSPF Suite of Apps	The National Swimming Pool Foundation has teamed up with inQ Mobile Apps to release a suite of iPhone apps for pool service operators. While a few of them can be used by homeowners, most of them are geared towards the pool service professional.	\$1.99- \$3.99	Wholesale Few Retail	No

Apps

Photo	App Name	Description	Price	Retail or Wholesale?	Interactive?
	Pool Smart	Pool Smart includes a checklist for managing your pool as well as a chemical calculator that shows you the exact amount of chemicals to use.	\$0.99	Both	Yes
	Swim University	Shameless Plug: Did you know we have an iPhone app that allows you to read our wonderful and entertaining blog on-the-go or near your pool? Well, we do! You can download it here :-)	\$0	Both	No
	Balboa Spa Control App	The Balboa Spa Control app lets you control your supported spa from Balboa. This app lets you directly control everything from temperature to filtration cycles. Note: This app only works if you have a Balboa brand system with Wifi, the list can be found at the above link.	\$0 With Balboa Spa Purchase	Retail	Yes
	Zodiac iAquaLink	The Zodiac iAquaLink system is one of the most advanced pool management devices on the planet. If your pool has a Zodiac iAquaLink system installed, you can use the mobile app to manage everything about your pool. Things like lights, pumps, and temperature are easily changed right from your smartphone or tablet.	\$0	Retail	Yes
	Pentair ScreenLogic	The Pentair ScreenLogic app works much like the Zodiac App but works with the Pentair pump control systems. It supports changing all of your pool settings on the fly if you have the supported Pentair pump system.	\$0	Retail	Yes
	Pool Pro	Pool Pro is another maintenance app aimed at service techs. It has a chemical calculator, route mapper and a function that enables techs from a company to sync their information.	free 10-day trial then \$9.99, for Android	Wholesale	Yes

Apps

Photo	App Name	Description	Price	Retail or Wholesale?	Interactive?
	Ecosmarte Cloud	The ECOsmarte Cloud is designated for users to monitor the status of their swimming pools and other devices while on the go. The cloud will help in viewing and regulating pH and copper levels and keep customers regularly updated. Includes how-to videos, an interactive pool and spa help, startup/FAQ, and more. Simple 5 minute set up	\$0	Both	Yes
	PoolCorp	A popular app with service techs is POOL360, from PoolCorp . This app allows users to find out if a specific item is in stock at their local SCP or Superior store, and order the item. For companies with more than one tech, the account holder can administer the apps in a way that limits each tech to certain functionalities, such as the ability to order parts or check pricing.	\$0	Wholesale	Yes

Web URLs

ECOsmarte Planet Friendly, Inc.
www.ecosmarte.com

Hayward Pool Products
www.hayward-pool.com

Inter-Fab, Inc.
www.interfab.com

Jacuzzi Pool Products
www.jacuzzi-poolproducts.com

Jandy Pool Products, Inc.
www.jandypoolproducts.com

Merlin Industries
www.merlinindustries.com

Pentair Pool Products
www.pentairpool.com/poolproducts.htm

Plastimayd Corp
www.plastimayd.com

Protect-A-Child Pool Fence Systems
www.protectachild.com

S.R. Smith
www.srsmith.com

Sta-Rite
www.starite.com

The Pool Tool Co.
www.pooltoolco.com

Waterway Plastics
www.waterwayplastics.com

ZEOBrite
www.zeobrite.com

Zodiac Pool Systems
www.zodiacpoolsystems.com

Toll-Free Support Lines

In this day of online emphasis, it may be difficult to bring your computer to the pool. The following toll-free support lines are offered by manufacturers to encourage successful pool ownership and safety.

American Association of Poison Control Centers
1-800-222-1222

ECOsmarte Planet Friendly, Inc.
1-800-IONSWIM (466-7946)

Glasspack Filter Media
1-800-466-7946

Hayward Pool Products
888-429-9273

Inter-Fab, Inc.
1-800-737-5386

Intex Pools Customer Service
1-800-234-6839

Pentair Pool Products
1-800-831-7133

Plastimayd Corp
800-348-2600

Protect-A-Child Fence Systems
800-992-2206

S.R. Smith
1-800-824-4387

Water Tech Corp's Customer Experience Center
800-298-8800

Waterway Plastics
888-SPA-JETS

ZEOBrite
1-800-7877

Zodiac Pool Systems
800-822-7933