

Swimming Pools

Swimming pools are excellent for relaxation, exercise and for a nice cool soak during a hot day. Swimmers and hotel guests appreciate a clean and clear pool that is well maintained. Often, guests stay away from cloudy or dirty pools. Sometimes, their eyes hurt and their skin start to itch. This is especially so with adults with sensitive skin, and with children.

What can be the problem? All these things come down to two words - water maintenance!

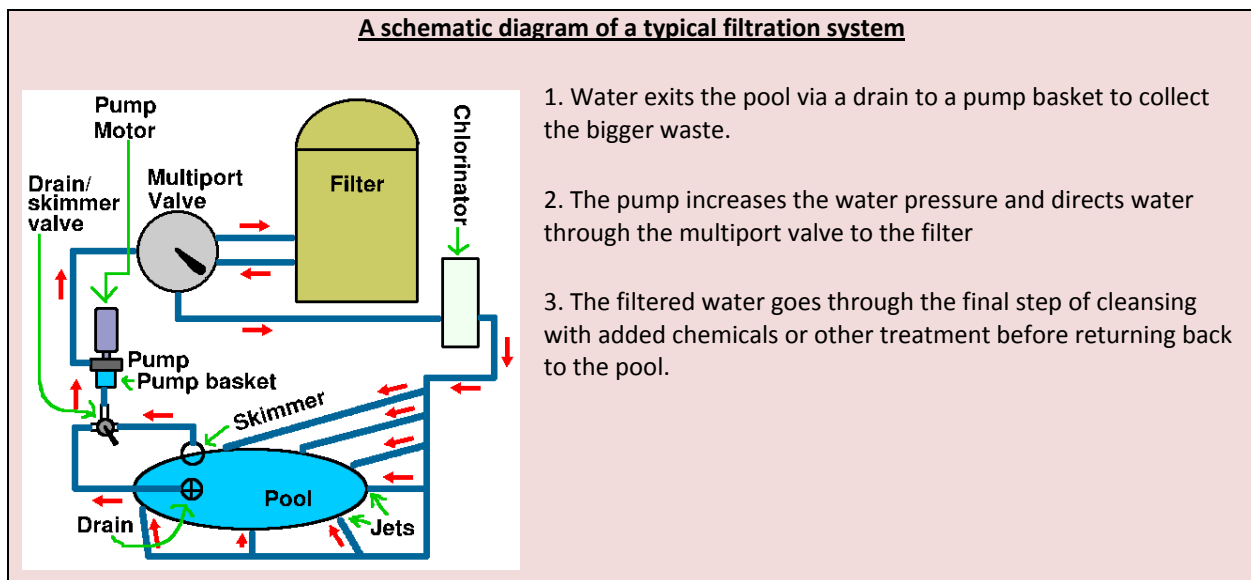
Water Maintenance

Often, pools and spas do not observe the right water maintenance. Inadequate maintenance, lack of water balance, poor water purification and old systems may lead to harmful consequences for swimmers and hotel guests.



Bacteria in swimming pool are a real hazard to health, making bathers and swimmers sick. They can cause infections in ears, nose and throat and possibly other more dangerous diseases like meningitis. Sanitizing chemicals are used to prevent the growth of bacteria.

The primary source of bacteria is the swimmers and bathers themselves! Animals can also contribute significantly to bacteria levels. A large dog may contaminate up to twenty times the volume of water than a human can.





Gaia Discovery Eco Solutions

Pumps

The size of the pump is dependent on the pool size and choice of filter system. The pump basket is often integrated with the pump for smaller systems. For bigger systems with large pump, there is often a secondary smaller pump used as pool skimmer.



Pool pump with basket

Filters

Filters can be divided into three groups with different characteristics: Sand, Cartridge, or Diatomaceous Earth (DE). There is a lot of confusion about filters, and many different opinions exist. Here are a few facts to consider. The first is that a pool can be properly maintained with any of the filter systems mentioned. Here is a brief description of each type:

Sand

Water is pushed through a bed of filter sand and removed through a set of lateral tubes at the bottom. Dirty water goes in the top and clean water exits at the bottom. As the filter sand becomes plugged with debris from the pool, the pressure increases on the filter and the water flow drops. In order to clean the filter, you just run it in reverse and dump the wastewater; this is referred to as “backwashing” the filter.



Cartridge

Water passes through a filter material that captures the debris. Cartridges have much more available area to filter than sand. There are two types of cartridge filters in general. In the first case, there are filter elements that are inexpensive to replace and as such, they don't tend to last long. Then there are other filters that have very expensive elements and these last five years or more.

DE

Diatomaceous earth (also known as DE, TSS, diatomite, diahydro, kieselguhr, orkieselgur) is mined and is the fossilized exoskeletons of tiny diatoms. They are used to coat “grids” in the filter housing and act as tiny sieves to remove debris. They are very small and as such can filter out particles as small as 5 microns.

Sanitizers

Chlorine Generators

One of the first alternative sanitizers introduced to the pool and spa industry was the chlorine generator, which produces chlorine from regular table salt. The pool water passes through a generator cell that introduces chlorine into the pool water. Chlorine generators are attractive to pool owners simply because they eliminate the need to buy, transport, store and handle chlorine. Improper use of the system can lead to high chlorine levels, which are health hazards.



Saline System

Saline (salt-water) purification system provides on-site production of the sanitizer needed to maintain water in a safe, healthy and algae-free condition. Sanitizer is produced automatically within the water itself. It involves no handling, storage or adding of chemicals to the water. A Saline Purification System, properly sized for its application, will eliminate the need to purchase sanitizing chemicals such as pool chlorine, algaecides and 'shock' chemicals.



Ozone Generators

Ozone gas is an active form of oxygen that reacts with bacteria, viruses, algae, and other impurities in the water. At low concentration levels in water, it has no effect on skin and eyes. Many municipal water purification plants use ozone to treat drinking water. When dissolved ozone in water comes in contact with impurities, it oxidizes them as chlorine chemicals do. It also causes particles, body oils, and suntan oils etc. to clump so that the filter can remove them more effectively.



Ultraviolet light

Ultraviolet (UV) light can be used as an alternative sanitizing method to effectively destroy microorganisms in swimming pools - up to 99.9% of the microorganisms can be destroyed with UV treatment. This dramatic reduction in microbial populations helps to better maintain proper sanitary pool water conditions: reducing the amount of chemical sanitizer needed to maintain proper, sanitary water quality and keeping the underwater surfaces free of bacterial or algal growth.

A UV Sanitizer must be used in conjunction with another sanitizing product: chlorine, ionizers or mineral purifiers. In addition, oxidation of waste products must be accomplished with the use of chlorine, ozone, shock or hydrogen peroxide. Most commonly a UV Sanitizer is used with chlorine or bromine



Gaia Discovery Eco Solutions

and can reduce their usage by a considerable amount. Typically, an UV Sanitizer is plumbed inline and operates with the filter pump cycle. Water passing through the cell is efficiently sanitized, as the UV light passes through the microorganism's cell membrane.

Water Balancing

Water balancing is not such a complicated exercise. It is simply the relationship between different chemical parameters. Your water is constantly changing, year round. Everything from weather to oils, to dirt, and cosmetics affect water balance. You probably have not changes the water in your pool for many years. This is dangerous as high levels of chlorine lead to allergic reactions while low levels promote the growth of algae and *Escherichia coli*, a bacterium that causes food poisoning.



Continuous filtration and disinfection removes contaminants that keep the water enjoyable but this does not balance the water. Proper chlorine and pH level interaction is needed for good water balance, which promotes safe and healthy swimming.

How do we know when our water is over or under saturated? We use a good test kit (with fresh testing reagents) to measure the chemical parameters of pH, alkalinity, and calcium hardness.

Why consult Gaia Discovery Eco Solutions

- **We provide you with the most efficient, cost-effective and quality solutions**
- **We have independent access to many different products and brands**
- **We supervise your needs through a holistic process of interview, survey, planning, installation, maintenance and training; and thereafter conduct yearly monitoring and follow up**
- **We can integrate your existing systems with eco friendly systems to bring down your costs**
- **We can readily provide you with information on new technology**

For more information contact

*Anders Nilsson
anders@gaiadiscovery.com
Skype: divezone
Mobile +65-9466 5387*

*Mallika Naguran
mal@gaiadiscovery.com
Skype: malgaia
Mobile +65-9663 7289*