



Fall 2010

Silver Water System Ionizer™
A Guide to the Natural Alternative to Chemical Disinfection
For Pools, Spas and Whirlpool

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Ionization systems for pool and spas have been approved by the National Sanitation Foundation International Standard 50. NSF International is a non-profit independent certifying organization that uses a consensus process to develop uniform minimum requirements to protect public health. Their approval means that the system was run as directed for 8000 hours and was just as effective at disinfecting pools as was the traditional chlorine system... without the harmful side effects!

WHAT IS THE SILVER WATER SYSTEM IONIZER?

The Silver Water System Ionizer is a tool for disinfecting water. This ionizer eliminates the need to add harsh chemicals. The ionizer can be used in the following residential and commercial applications:

- Bathtubs
- Spas
- Pools
- Pedicure Spas
- Cooling Towers

WHAT ARE THE FEATURES?

- Easily installed into the circulation system
- Micro controller with memory chip which safeguards in a power failure
- Large dose option for easy system start-up
- Interactive digital display
- Electronic touch switches for longevity
- Ultra-durable IP66 and NEMA 4X rated weather proof enclosure which protects electronics from moisture, corrosion, and harsh environments.
- Lock 'n Seal® weatherproof connectors
- 1 ½"-2" PVC Electrode Replacements
- Automatic polarity switching electrodes
- 99.9% pure metals: no trace metals
- Silver (Ag), Zinc (Zn) and Copper (Cu) Electrodes
- Will sanitize up to 40,000 Gallons
- Copper/Ion Test Kits Available

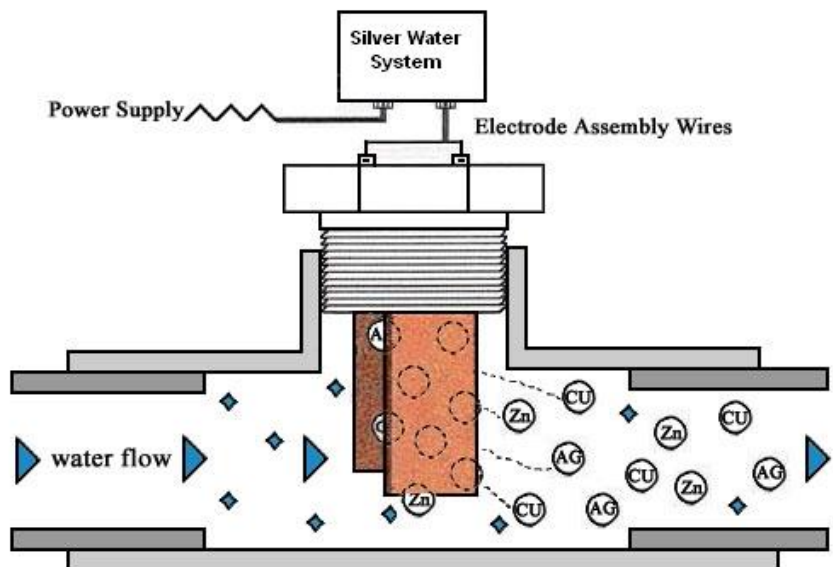
WHAT IS IONIZATION?

An atom usually has an equal number of electrons and protons. The process of gaining or losing electrons is called ionization. The Silver Water System creates metal ions electronically.

HOW DOES IT WORK?

In very basic terms, the Silver Water Ionizer works as follows. An anode made of silver, copper, and zinc is placed in a chamber. This chamber is mounted in the recirculation system of a pool or spa. A safe low voltage DC current controller sends signals to the anode causing microscopic particles (*ions*) of silver, copper and zinc to be dispensed into the water as it passes through the chamber.

Silver (Ag) ions kill over 650 types of bacteria, viruses, and protozoa such as HIV, Legionella Pneumophila

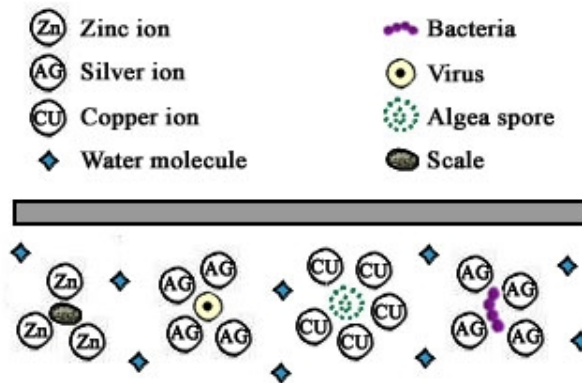


(*legionnaire's disease*) streptococcus, E-coli, salmonella, and most viruses. Silver has been successfully used in ailments such as acne, athlete's foot, herpes, lesions, poison oak, rashes, septic ulcers, sun spots, skin cancer, warts and yeast infections. Silver is also beneficial in treating minor bites, burns, wounds and scrapes.

Copper (Cu) ions prevent algae growth. Copper is recognized as one of the best algacide killers known to man.

Zinc (Zn) stimulates healing of the skin and prevents stains and rings on the spa basins.

While lethal to bacteria, many viruses and algae, the system is completely safe for humans, animals and plants.



The copper destroys the algae and bacteria by piercing the outer membrane and disrupting enzyme balance. Silver is effective as a sanitizer because of its efficiency in interrupting DNA production thus preventing reproduction and accelerating the death phase of the bacteria and viruses.

HISTORIC USES

Silver and Copper are not new technologies. Silver has been known as an effective and safe bacteria and virus killer for centuries. In the ancient Greek civilization, the royalty used to drink from silver goblets and their water was stored in silver urns in order to purify their drinking water.

In the 1960's NASA designed a silver ionization system to purify the astronaut's drinking water for use on the Apollo flights. Due to costly manufacturing methods, the price was prohibitive. In the 1930's people were paying as much as \$100.00 an ounce. This led to the search for cheaper ways to kill germs.

IS IT SAFE?

From a health standpoint, water ionization is completely safe as no toxic chemicals are produced or consumed. The system is environmentally friendly. The water is healthy, sanitary and odor-free. Water quality is improved dramatically. The water feels fresh and clean and has no chemical smell. The ion system is ideal for those who are allergic or very sensitive to sanitizing chemicals. It is non-corrosive. It is chemically-neutral, so water balance is often easier to maintain. The system is easy to install and basic operation is easily learned.

NATIONAL RECOGNITION

Ionization has been established by the United States and Canada as an acceptable sanitizer for water treatment. This includes drinking, swimming and bathing water applications.

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8000 hours and was just as effective at disinfecting pools as was the traditional chlorine system. These systems were run in conjunction with 0.4 ppm chlorine instead of the traditional 2 ppm chlorine.

There are many States in the USA that have done their own testing as well. Massachusetts Department of Health started by testing ionization equipment in one of its public pools and reduced their chlorine use from 9-10 gallons a day to 2.7 gallons a day. After testing, the Department of Public Health sent out letters to all municipal boards of health in 1997 stating that a properly run silver/copper ionization systems had been demonstrated to maintain as safe a swimming pool as other approved technologies, such as chlorination.

WHAT ARE THE SYSTEMS BENEFITS?

Pool and spa owners are looking for alternatives to chemical disinfection. They are tired of the constant expense, additional work, unnecessary problems and dangerous side effects of chemically sanitized water. This is the least expensive way to avoid using chlorine, bromine, hydrogen peroxide and other hazardous chemicals in your spa. With the electronic ionizer the water is purified automatically and because it is 100% natural, it provides peace of mind.

TOP 5 REASONS TO STOP CHEMICAL USAGE

Less Toxic Exposures- Chlorine ions undergo reactions in the spa to form chemicals such as trihalomethanes (THM), which can enter the body through ingestion or absorption. Some studies have linked exposure to THM with cancer, organ damage, asthma and other health problems.

Preserve your Pool or Spa – Chlorine is a corrosive chemical that contributes heavily to deterioration of pool linings, pipes and equipment. Humidity in indoor pool areas can actually rust the metal building supports and concrete of the pool facility and lead to the corrosion of the pool walls.

Reduce Chemical Use – The amount of chlorine is drastically reduced in the system, from 2 ppm to 0.4 ppm. Depending on the size of pool and system installed, chlorine usage can be reduced as much as 90%.

Reduced Irritation – Chlorine is harsh on human skin, hair and eyes causing rashes and outbreaks on some individuals. In contrast, the copper and silver ions used in the ionization process are beneficial to the skin and hair and heals many skin ailments.

Worker Safety – Concentrated chlorine can irritate flesh and eyes, the fumes can be overwhelming and it is very flammable. On the other hand, the copper and silver bar that produces the ions poses an almost negligible risk to worker health and safety. Unlike chlorine, ionizers will not spill nor do not pose an inhalation risk when opened.

SILVER WATER SYSTEM VS THE ALTERNATIVES

Chlorine: when the pH becomes a little high, a common problem with most pools, chlorine (*or bromine*) becomes almost totally ineffective. Chlorine is dissipated rapidly by sunlight. It is also toxic and it is absorbed through the skin. The effective chlorine in a pool can be almost totally depleted in a few hours. In 1985, USA *Today* reported “Swimmers had significantly more eye, ear and skin infections than non-swimmers, largely because of high bacteria and virus levels in pools, according to Illinois Public Health researcher, Linda Berrafato”. These tests have shown that chlorine by itself is not doing a satisfactory job of protecting the health of swimmers.

Ozone: the drawback of using ozone is that it is very volatile and is gone almost as soon as it is formed. Most of the ozone is destroyed upon mixing with the water at the point of injection. Very little, if any, ozone makes it into the pool water. Any ozone that does make it into the water has a very slight chance of making it to the wall of the pool or spa where the algae grow. In large doses with a long contact time, ozone can kill algae, but it is very unlikely in a residential application (www.delozone.com). Because of this, it is critical that pools and spas with ozone still maintain a relatively high level of chlorine or bromine in the water. Ozone can also cause cloudy water because it oxidizes the organics in the water causing them to form a chain which then becomes visible to the eye and gives the water the cloudy appearance.

Salt Water Generation: It's interesting that the salt water system is becoming popular. Most people are under the impression that they are not swimming in chlorinated water, but the electrode current plus the salt makes chlorine. This is why people that are allergic to chlorine will usually have the same reaction to the salt water system. Salt water systems have all the drawbacks of the chlorinated system because chlorine is being produced. Also, many would prefer to swim in spring water rather than salt water.

Silver Water System: An Ionizer is an *Extremely Stable Sanitizer* Residual that keeps the water bacteria-free for weeks. Purifying Ions are relatively unaffected by pH, temperature, aeration or sunlight. Unlike the alternatives, they do not dissipate or evaporate from heat and sunlight. The bactericidal effect is actually enhanced by sunlight and high temperatures. The ions produced in the system have properties that tend to remain resident in the water to provide longer-lasting and a more constant purification. Operating costs and maintenance are low.

WHY CHOOSE THIS SILVER WATER SYSTEM IONIZER?

State-of-the-art Microprocessor Controls – The DC current supplied to the electrodes takes into account the salinity, chemistry and conductivity of water. This ensures the electrodes will not corrode faster than necessary for proper pool sanitation and maintenance.

Digital Display – Helps with accuracy in maintaining the correct ion level. There are 99 settings (0-99) depending on your water capacity.

Large Dose Option – This button gives new system start-ups a large dose of ionization and then automatically begins the required duty cycle. You can set your ionizer immediately after installation, and leave for a week before testing is required.

Touch Switches – A touch switch is a capacitive operated sensor that is turned on and off by body heat coming close to the metallic target, instead of flicking a lever or pressing buttons like a regular switches. Touch switches have no mechanical parts to wear out, so they last a lot longer than regular switches. Touch switches can be used in places where regular switches would not last, such as wet or very dusty areas.

99.9% Pure Metals for the Electrodes – These are the most expensive metals which ensure proper performance. Trace metals can cause a variety of problems.

Optimum Electrodes – The optimum performance mix is 10% Silver (Ag), 10% Zinc (Zn) and 80% Copper (Cu). Manufacturers have been known to skimp on the more expensive metals to cut costs. Don't be fooled by electrode size, it's the contents that are important!

Easily Replaceable Electrodes and Color Coded Connectors – Top of the line UL and CSA approved Lock 'n Seal® Weatherproof Connectors keep moisture out and insures plugs and receptacles stay locked. They are also color coded for a visual means for matching plugs and receptacles quickly and accurately on the production floor and or in the field. They easily disconnect for electrode replacement.

Electrode Life – The electrodes will last 1-3 seasons depending on the size of the pool and operating time.

Alternating Polarity Switches Every 5 Minutes for Self-Cleaning Electrodes

MAINTENANCE

The only maintenance you need for your Ionizer is checking the electrodes once per year to ensure they are clean and there is a sufficient amount of electrode left to maintain your copper levels. Your electrodes will need to be replaced periodically depending on the water capacity, conductivity and usage. Usually, a one to three season life can be expected. The electrodes are easily disconnected from the unit and replaced. The controls do not need to be replaced.

CAN IONIZER'S STAIN POOLS?

No. Properly designed and manufactured, ionizers should never stain pools or spas. There are a few reasons why pools can become stained. All are easily avoidable!

Improper Use of Oxidizing Materials – Don't throw chlorine tablets or granules directly into the pool. The suspended copper ions become oxidized by the extremely powerful concentration of chlorine. This causes the copper to fall out of suspension, this can cause staining where the tablets or granules were dumped or even cause a ring around part of the pool. To avoid this we recommend the use of a liquid oxidizing material

pH and Temperature Extremes Combined- If your pool becomes unbalanced on the alkaline side, (8.2 & UP) and the temperature is very hot, you can run the risk of staining. To avoid this, simply maintain the recommended pH of 7.2 - 7.6

Inadequate Microprocessor Controls – Some ionizer controls do not account for salinity, chemistry and conductivity of water. When these ionizers are allowed to run unchecked for extended periods of time, pools can become stained from excessive amounts of copper. You should check your copper levels periodically and purchase your ionizer from a reliable source.

Zinc was not used in the Electrode – Zinc is the ingredient which prevents any stains from forming around the pool. Zinc should account for at least 5% of the electrode metals. If you have purchased electrodes without zinc, you should find a manufacturer that can provide the 5% zinc that each electrode requires.

If staining occurs, do not worry. There are pool stain treatment products available that will reverse the staining.

SILVER WATER SYSTEM SUGGESTED READING



Relaxing in Filth: What Your Whirlpool Tub May Be Hiding

Few people realize when they fill a whirlpool bath, sit down for a soak, and lean back to breathe in the warm air, they are exposing themselves to a variety of potentially fatal bacteria and fungi. While resting in circling warm water that caresses their skin, they breathe in deeply, allowing legionella spores to reach deeply into their lungs. They stretch slowly, unwittingly allowing fecal matter, skin, and other debris left behind from the previous bather to envelope them slowly as they dip their head under the water. To read the full article visit: <http://www.infectioncontroltoday.com/articles/231feat1.html>



Pool Chlorine Implicated In Childhood Asthma

The chlorine used to disinfect indoor pools may be implicated in the surge of childhood asthma in developed countries, suggests research in Occupational & Environmental Medicine. Trichloramine, or nitrogen trichloride, a highly concentrated volatile by-product of chlorination, that is readily inhaled and generated during contact between chlorine and organic matter such as urine or sweat, seems to be the culprit. To read the full article visit: www.scienceagogo.com/news/20030428215935data_trunc_sys.shtml



Problematic Pedicures

After getting a pedicure with her mother and sister, more than 100 open sores [furuncles] spread rapidly over this 11-year-old girl's legs. The skin and soft-tissue infections [boils] could last nearly a year, while ongoing antibiotic therapy costs will only be surpassed by reconstructive surgery to fill in the gaps and remove the scar tissue left in the infection's. To read the <http://www.almadentimes.com/112504/painful.htm>

SUMMARY OF FACTORS TO CONSIDER WHEN PURCHASING A WATER SANITIZER

Toxic Chemicals

(Chlorine, Bromine etc)

- Burning eyes, Nose and Throat
- Damaged Hair
- Itching and Irritated Skin
- Discolored Bathing Suits and Liners
- Offensive Odor
- Linked to Cancer, Organ Damage and Respiratory Problems
- Pollutes our Water, Air, and Soil
- Daily Work, Testing and Dangerous Material Handling

Ozone

- Very Volatile, is gone almost as soon as it is formed
- Ozone will not make it to pool walls where algae grows
- A relatively high level of chemicals is required
- Can cause cloudy water

Salt Water Generation

- The electrode current plus the salt generates chlorine (see toxic chemicals)
- Allergies to toxic chemicals will still occur
- Costly amount of salt added
- Salty skin, hair, eyes and clothing
- Corrosive

Silver Water System Ionizer

(100% Natural & Environmentally Friendly)

- Silver has been used for centuries to kill bacteria and virus
- Pool will Stay Crystal Clean
- Skin and Hair will Remain Soft and Healthy
- Relieves Allergies or Sensitivities to Chemicals
- Bathing Suits and Liners will Stay in there Original Condition
- Surrounding Plants and Landscape with Thrive Beautifully
- Silver Ions have been successfully used to treat 650 diseases and ailments including bacterial infections, bites, burns and cuts, poison oak and rashes.
- A Safe and Healthy Environment
- Enjoy a Rejuvenated and Refreshing Feeling and Smell
- Simple to Install and Operate
- It is Automated. No more Daily Chores
- It will Save You Money!