

***Aqua*-Nova**, Inc.

Aqua-DOC™

***Aqua*-DOC POOL/SPA MAINTENANCE REDUCTION SYSTEM**

The ***Aqua*-DOC** Magnetic Water Conditioner system is causing a revolution in the pool and spa industry by reducing pool/spa maintenance better than most products on the market. The ***Aqua*-DOC** uses lightweight, compact, ceramic "super" magnets to alter the nature of water. The result is the cleanest, clearest pool or spa with the least work. The ***Aqua*-DOC** dissolves body and tanning oils that usually collect on the side walls. It polarizes the small particles in the water, that usually recirculate right through the filter, into large enough clumps to be filtered out. The ***Aqua*-DOC** stabilizes pH, inhibits algae and mold and makes chlorine/bromine so efficient you can often use less. In addition, it keeps discoloring minerals from collecting on the side walls and removes scale from the side walls and inside of equipment. It also inhibits corrosion that can ruin pumps, filters and heaters. Since ***Aqua*-DOC** uses permanent super magnets, there are no parts to replace, requires no power to operate, no expensive installation, no maintenance and lasts virtually forever.

THE AQUA-DOC[™] MAGNETIC WATER CONDITIONER

In today's modern lifestyle we take the application of magnetics for granted. For example, if it were not for the application of magnets we would not have electricity, motors or generators. Think for a second how it would affect your lifestyle if there were no motors or electricity. There would be no electrical circuit in your car - you would be starting it by hand. There would be no microwave ovens, freezers or refrigerators. There would be no televisions or VCRs. There would be no computers, no curling irons, electric shavers and a whole host of other convenience products we use to make our life easier.

Most of these improvements in lifestyle have come from a very simple and practical phenomenon called **electrodynamics**. The phenomenon comes about when you pass a conductive material through a magnetic field. You get an instantaneous flow of electrons or an electrical current.

There is another field of endeavor in the scientific community that concerns the movement of a fluid through a magnetic field. The application is called **magnetohydrodynamics** (MHD). Until recently, the lack of materials to make powerful enough magnetic fields to perform the task has limited understanding of this phenomenon. Yet, this phenomenon has the ability to change our lifestyle as much as the use and application of electricity. When a fluid is passed through a magnetic field of a proper orientation and proper strength, there is a change brought about in the fluid.

The Aqua-DOC magnetic system is an application of MHD. It is not simply a couple of magnets arranged so the fluid passes through it. It is a system that has evolved over eight years which takes into consideration flow rates, pipe diameter, magnetic pole orientation, etc. and is covered by both use and design patents.

Currently MHD is in use in most of the eastern countries and it is also in use in many other commercial applications in the U.S. You will find it used in many nuclear power plants to control scaling before the steam gets to the turbines. It is also in use in commercial applications such as heat exchangers, boilers, cooling towers and so on for the control of scale, the control of algae and the stabilization of pH. The application of **MHD** for pools and spas is brought to you by Aqua-Nova Inc. in the form of the **Aqua-DOC** magnetic water conditioner.

The changes being made by passing a fluid (water) through the Aqua-DOC's powerful focused magnetic field are physical in nature, not chemical. The Aqua-DOC changes the actual physical structure of the water molecules and the electrical charge existing in both the water and the substances in the water. These changes result in an entire stream of user benefits.

Physical Changes

The chemicals that have been used in the past are a media to make structural and physical changes. Many of these changes can now be made directly without a chemical media. Although many changes can be made by the Aqua-DOC magnetic water conditioner, some chemicals will still be required. The Aqua-DOC magnetic water conditioner is not a panacea to solve all water chemistry problems, but has the longest list of benefits of any product on the market. The Aqua-DOC is best described as a magnetic ionizer without the resulting side benefits associated with other methods of ionizing water.

Reduced Surface Tension

As water passes through the Aqua-DOC, it is changed in structure to reduce the water's surface tension. Reduction in surface tension causes the water to look as if it is trying to climb the side walls of a container vessel. This will usually be noticed first when checking chlorine residual or pH levels. A reduction in surface tension coupled with the electrical charge change causes the water to act wetter and chemicals to become more efficient. The result is that any chemicals that are still needed can be reduced in the amount used.

Solids Coagulate

As water passes through the Aqua-DOC it is changed in electrical charge. This charge change is the same thing that happens when you put a clarifying agent in the water. The particles that are normally so small they simply recirculate right through the filter now take on an electrical charge which causes them to clump together into large enough clumps to be caught by the filter and filtered out. You may see a rise in filter pressure within a few days and so you must keep your eye on filter pressure. The result of the charge change is cleaner, clearer water with no work and no additional cost.

Reduced Chlorine Need

Pools/spas can be safely operated at much lower chlorine/bromine levels with Aqua-DOC than with normal water chemistry. (.5 ppm for residential pools and 1.0 ppm for commercial pools).

Getting solids out of the water and into the filter results in additional benefits besides simply cleaner, clearer water. When chlorine comes in contact with solids it oxidizes them and they are burned up. In the process, chlorine converts into a substance called chloramine. Chloramine is the cause of odor and eye irritants and is a dangerous carcinogen. Having less solids in the water means less odor and eye irritants are produced and less chlorine is used up.

The Aqua-DOC also changes the charge of the chloramines and helps them revert back to chlorine to become effective once again as a sanitizing agent. With the Aqua-DOC, pools/spas can be operated with much lower residuals than under normal water chemistry.

When water passes through the powerful focused magnetic field of Aqua-DOC some of the bonds between the hydrogen and oxygen are broken and an "oxygen free radical" is released. This ion is free to oxidize solids in the water in the same way that chlorine oxidizes solids. There are not enough free radicals released however to be able to operate a pool or a spa without some additional halogen such as bromine or chlorine. However, the amount necessary is usually reduced. The result is cleaner, clearer more sanitary water with lower amounts of chlorine required to maintain that cleanliness.

Oils dissolve in water

One benefit that you will notice, in as little as a few minutes after applying the product to a portable spa and turning the pumps on, is its ability to emulsify the oils that would normally collect on the sides of the spa. Under normal water chemistry these oils that collect on the side walls are difficult to remove and would require a chemical in order to emulsify them. Once the water is conditioned through the Aqua-DOC, the surface tension has been reduced to the point that oils now emulsify and are mixed with the water. You can simply rub the oils off with the conditioned water itself. This means that the natural skin oils, sun tanning lotions and so on, are no longer a problem since they simply mix with the water to end up in the filter where they belong.

pH Stabilizes

pH fluctuations are caused by the water's need to gain or lose electrons. The Aqua-DOC increases the electron speed and allows the water to share electrons which brings about buffering of pH swings. This natural buffering of pH is brought about naturally without the need for large amounts of chemicals and their resulting costs.

Corrosion Control

Most corrosion is caused by the water's need to pull the electrons it needs to bring the water back to neutral. Since Aqua-DOC allows electron sharing, there is less need for the water to pull electrons out the metal and cement parts of the system. In addition, Aqua-DOC tends to roll the oxygen into the center of the molecule so there is less oxidizing of metal parts.

Aqua-DOC Forgives You

The normal pH operating range of a pool/spa is between 7.4 and 7.6 under normal water chemistry. Above that range, scale can attach itself and stain surfaces. When pH is below 7.4, corrosion begins to attack expensive metal parts of the system. Since Aqua-DOC controls scale on the high end of the pH scale and corrosion at the low end, it extends the operating range. Pools and spas can safely operate for short periods of time in the range of 6.8 to 8.0 without scale or corrosion.

Controls Staining

Aqua-DOC conditions water to chelate minerals. When minerals are chelated, water has the ability to retain a higher level of mineral content without the minerals plating onto the side wall or attaching themselves to the inside of equipment. The result is white pools stay white, black pools stay black, without the constant scrubbing and cleaning necessary under normal water chemistry. In addition, the water's charge change coupled with its ability to retain higher levels of mineral content means that scale that has already attached itself to the side of the pool or spa surfaces and to the inside of the heater and other equipment, will actually be removed back into the water. This makes it possible to acid bath a pool without the acid and its resulting danger, high cost, and without having to drain the pool, refill it, re-balance it, etc. This stain control and removal ability of the Aqua-DOC pertains not only to calcium stains but iron and copper.

Algae Control

Algae control comes about in three different ways. The first one is caused by the Aqua-DOC magnetic water conditioner placing the algae spore under so much stress that it bursts the cell walls in a process called cell lysing. This bursting of the cell wall allows the living parts of the algae to flow out which inhibits algae growth. The second method of algae control is caused by Aqua-DOC's ability to chelate the minerals in the water. The minerals are no longer available to the algae as a nutrient and as a result the algae dies of starvation. The third method of algae control in pool and spa applications is brought about by the reduction of surface tension caused by the Aqua-DOC which allows the chlorine laden water to penetrate the bioshield that surrounds the algae. Once this bioshield is penetrated, the chlorine can do its job in killing the algae. The result of algae control with the Aqua-DOC means that pools and spas can remain clear and clean without the use of algicides under most conditions. You will find that sometimes the algae, because of its tremendous ability to reproduce, can get ahead of the Aqua-DOC and some additional algicide may be necessary for total control. This algae control of Aqua-DOC also means that much less of the chlorine residual is burned up in controlling algae and the result is reductions in the amount of the chlorine necessary to keep a pool or spa very clean.

Reduced Skin Drying

The reduction in surface tension also results in water that is kinder to the skin and less drying. You can actually feel the physical change in the water silkiness minutes after installing the Aqua-DOC on a spa. This change will take longer in a pool -- it may take 2 or 3 days.

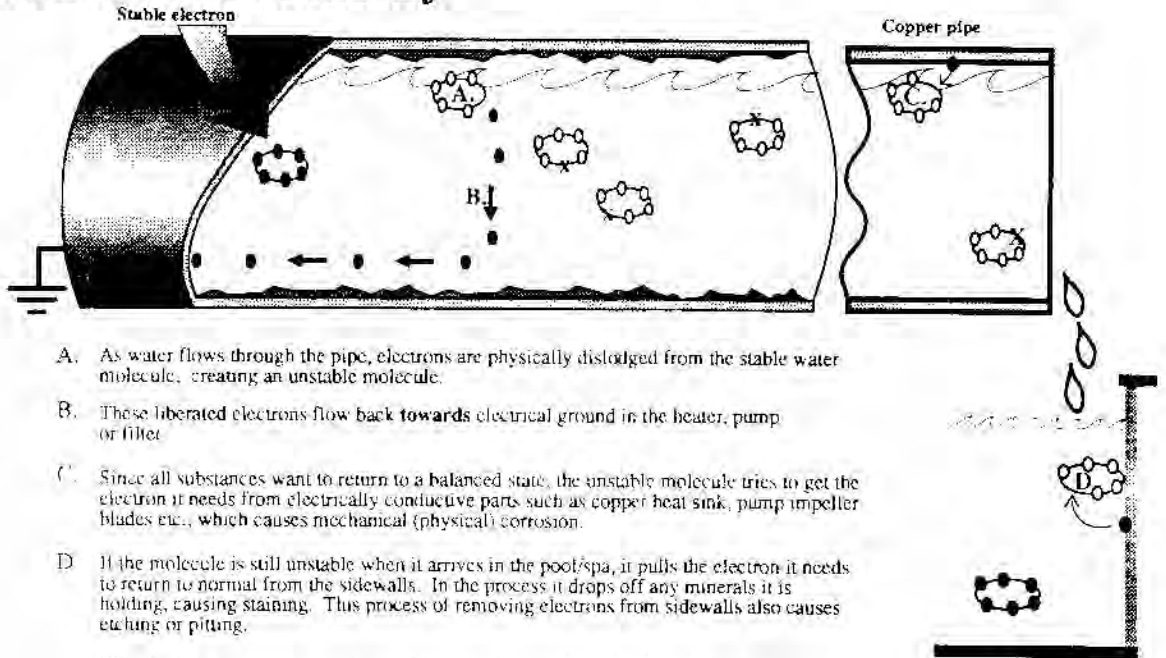
Reduced Heating Costs

Keeping scale from the inside of heating equipment keeps heat costs down. The U.S. government has identified that the existence of only 1/8 of an inch of scale on heat transfer surfaces can account for as much as 30% increase in heating costs.

Stop!!

Staining and Pitting

Normal Water Chemistry

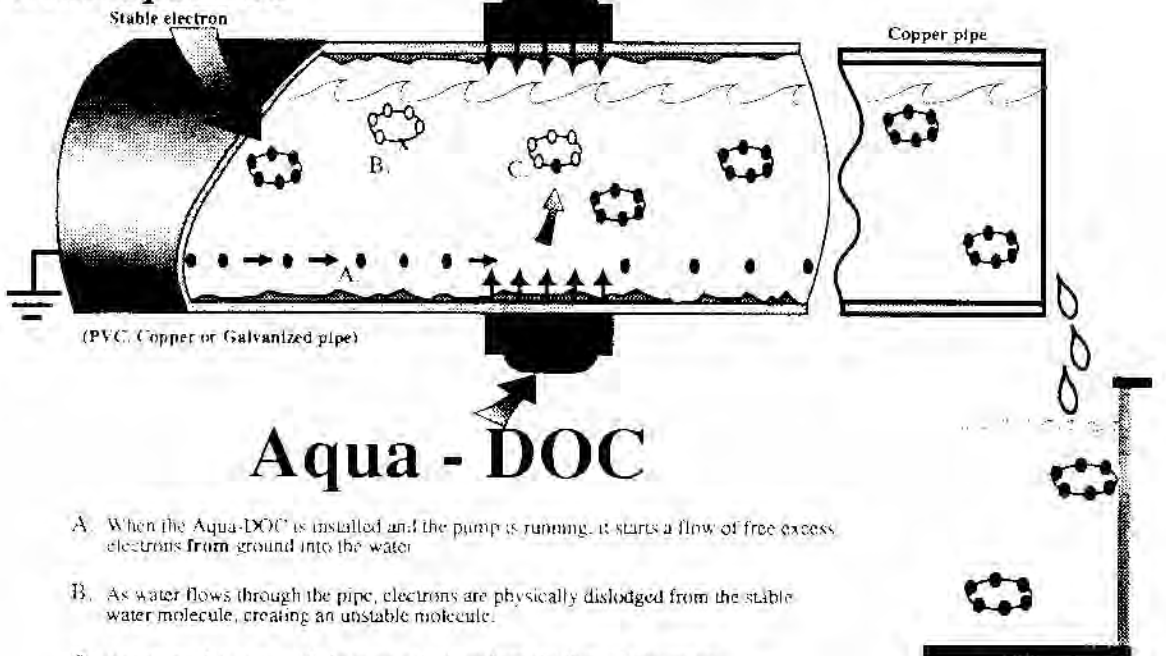


- As water flows through the pipe, electrons are physically dislodged from the stable water molecule, creating an unstable molecule.
- These liberated electrons flow back **towards** electrical ground in the heater, pump or filter.
- Since all substances want to return to a balanced state, the unstable molecule tries to get the electron it needs from electrically conductive parts such as copper heat sink, pump impeller blades etc., which causes mechanical (physical) corrosion.
- If the molecule is still unstable when it arrives in the pool/spa, it pulls the electron it needs to return to normal from the sidewalls. In the process it drops off any minerals it is holding, causing staining. This process of removing electrons from sidewalls also causes etching or pitting.

Chemical corrosion is caused by an electron deficiency brought about by low pH or insufficient water hardness and total alkalinity.

Mechanical corrosion is brought about by the above phenomenon. This mechanical corrosion explains why metal parts and pool/spa sidewalls can corrode and pit even though pH has been properly maintained.

With Aqua-DOC



- When the Aqua-DOC is installed and the pump is running, it starts a flow of free excess electrons **from** ground into the water.
- As water flows through the pipe, electrons are physically dislodged from the stable water molecule, creating an unstable molecule.
- Any atoms that now need electrons gain them from the flow of free excess electrons, rather than from metal parts of the system or pool sidewalls. The result is that metal parts no longer corrode, sidewalls do not stain and plaster pitting comes to a halt.

Aqua-DOC can halt **mechanical corrosion** but it is still important to chemically balance the water to reduce **chemical corrosion**.

Aqua-DOC™ Water Conditioner

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The Age of SUPER STUFF

Aqua-DOC is a magnetic water conditioner that simplifies pool/spa care and reduces operating costs. Aqua-DOC is an application of high technology ceramics and breakthroughs in magnetic technology.

What it does

The Aqua-DOC Water Conditioner focuses a powerful magnetic force field to ionize the water and produce positively charged oxygen ions. These are **physical** changes brought about directly whereas traditionally changes have been done through the media of chemicals. Chemicals are not eliminated but the use of some chemicals are diminished.

Water is a brat!!

Water professionals have known that the way to make water better behaved for use in pools and spas is to ionize it. Many attempts have been made to ionize water with varying degrees of success. Some methods have cost too much to be practical and have caused unacceptable side effects. Many designs have lacked sufficient power to work at low flow rates and required complicated installation procedures. In addition to this, they have needed expensive replacement parts, destroyed other parts of the system or have a limited life span.

The Natural Solution!!

The Aqua-DOC Water Conditioner has overcome all of these problems and added some additional benefits. The Aqua-DOC Water Conditioner is low in cost, requires no installation expense, needs no power to operate, has no replacement parts, adds no additional chemicals, lasts virtually forever, has no known side effects, enhances other alternative systems and comes with a money back guarantee.