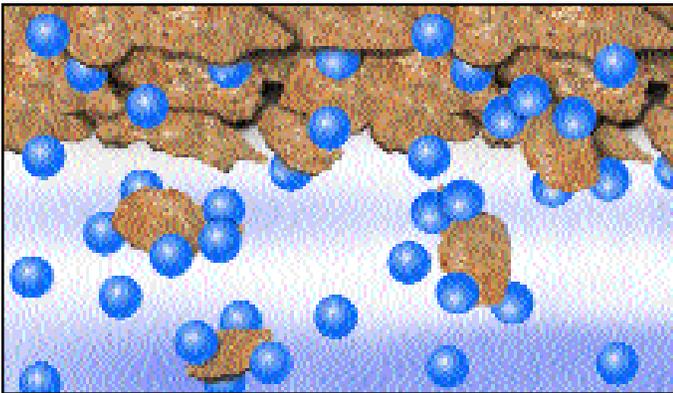


**How does the TWT Deposit Control System do this?**

Very often, water in plumbing systems will have colloid-sized particles. These include alumina, silica, bacteria, and algae. The colloidal particles have a surface charge that is relatively weak. As the colloids move around in the water, they collide and aggregate.

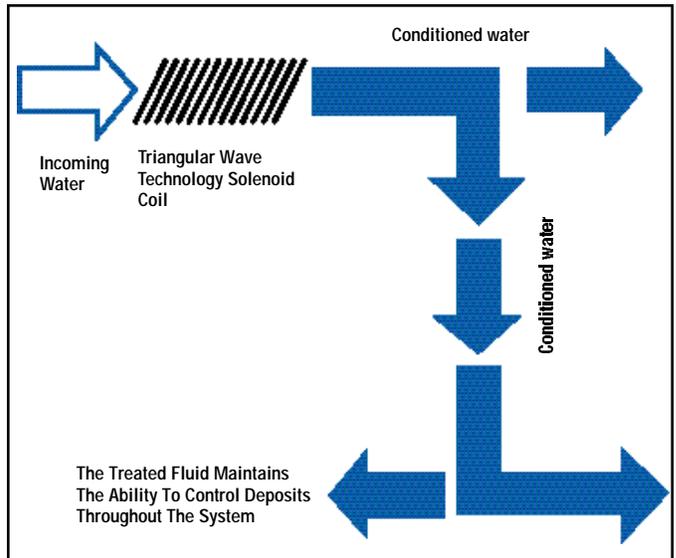
When the aggregate colloids pass through the Triangular Wave field, the surface charges on the colloids are enhanced. Some researchers theorize that this effect may be caused by an ordering of the water molecules adsorbed on the surface of the colloids. The net result is that the colloids repel each other and repel from the sides of the equipment, instead of forming corrosive deposits on the equipment surfaces.

In the specific case of bacteria, the results are even more gratifying. Slime-forming bacteria attach to the walls of the equipment and form bio-film. Bio-film is the habitat for other bacteria, such as legionella. The Triangular Wave System enhances the surface charge of the slime-forming bacteria as above, preventing them from attaching to the equipment. In addition to preventing the corrosive deposits, this deprives the other bacteria of the habitat they need to feed and propagate. Over a few days time, most of the bacteria die.

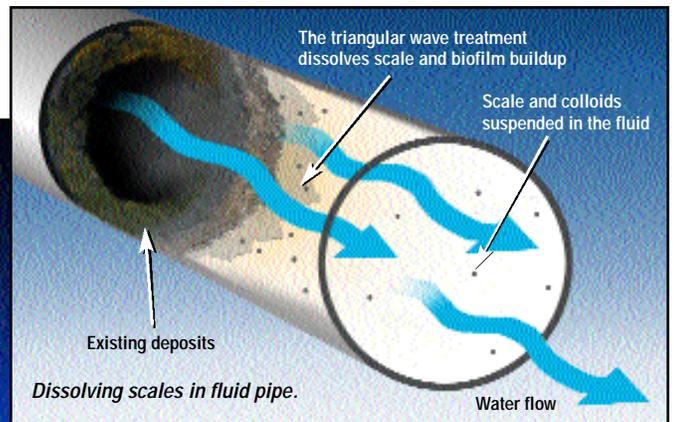


*Freed water molecules dissolving existing scales.*

*When the TWT systems are properly installed the effects of the Triangular Wave Technology Treatment Last Downstream*



*In effect, a clean, corrosion-free delivery system is restored and maintained in an environmentally safe and chemical-free manner. The result is clean pipes and tubing with no biofilm and reduced bacterial contamination.*



*Dissolving scales in fluid pipe.*

**Commercial/Industrial Microprocessor Deposit Control**  
**TRIANGULAR WAVE TECHNOLOGIES**

**Pipes with scale, biofilm and colloids buildup prior to TWT treatment.**

**Signal Coil producing magnetic field inside the pipe. The resulting induced, oscillating electric field provides the necessary molecular agitation for scale and biofilm prevention and removal**

**Hydrated (wetter) water molecules acting upon the scale, biofilm buildup, and the colloids in the water. Effects are immediate and last downstream.**

**Water The Way Nature Intended it!**

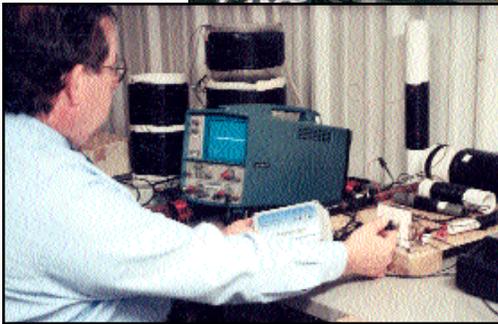
**TRIANGULAR WAVE TECHNOLOGIES, INC.**  
 FLUID MANAGEMENT SOLUTIONS  
[www.triangularwave.com](http://www.triangularwave.com)

# TRIANGULAR WAVE TECHNOLOGIES PATENTED RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL CHEMICAL-FREE DEPOSIT CONTROL SYSTEMS

**A**t our manufacturing facility, we have pioneered the advanced design of fluid management products to meet the needs of residential, commercial, and industrial applications. TWT manufacturing expertise is reflected in our efficient engineering design team. Our technical test department constantly strives to meet the ever changing requirements of the fluid management environment. Our unique capabilities and design expertise have successfully solved a wide variety of problems for a wide variety of customers.



Under the direction of a manufacturing supervisor and group leaders, our state-of-the-art products are designed and assembled to meet our precise quality control standards.



## ***The Patented Triangular Wave System***

The ***Triangular Wave System*** is an advanced method for controlling scale and bio-fouling, and forms the heart of our Deposit Control systems. It is applicable with recirculating HVAC, heating, process cooling, agricultural, industrial processing, wastewater, and other fluid based systems. The ***Triangular Wave System*** consists of a wire coil that forms a solenoid around the fluid pipe, and a power supply that ***constantly changes the polarity, frequency and amplitude*** of the current being sent to the solenoid. When the current reaches the solenoid, a constantly changing electromagnetic field is formed. That field induces a constantly changing voltage in the fluid. The hydrogen bonds between water molecules are broken and more water molecules are freed to hydrate scale ions and colloidal particles. The scale ions dissolved in the water are agitated, they collide, and form scale molecules that join together to form crystals.

The colloidal particles in the water receive an enhanced surface charge, possibly from the freed water molecules. The enhanced surface charge is great enough for the colloidal particles to repel each other and from the sides of the equipment, and stay suspended in the fluid.

## ***Versatile Fluid Management Systems To Effectively Meet The Needs Of Any Application***

### ***Specializing in:***

- ***Eliminating Scale Deposits and Bio-Film in Pipes, Fixtures and Equipment***
- ***Ultraviolet Disinfection Systems***
- ***Ionization Purification Systems for Controlling Bacteria & Algae***
- ***Emergency Transportable Water Treatment Systems***
- ***Chemical-Free Solutions for All Fluid-Based Industries***
- ***Economical & Cost Effective***

### ***Benefits of the TWT Deposit Controller***

#### **PREVENTS SCALE BUILD-UP**

- Scale particles in the water receive an enhanced surface charge that causes them to repel each other and from the walls of the equipment.

#### **ELIMINATES TOXIC CHEMICALS**

- No recurring chemical expense
- No handling and storage of hazardous chemicals on site

#### **REDUCES CORROSION**

- Reduces bio-corrosion by preventing the formation of bio-growth on vessel surfaces where bacteria can attack the metal.
- With higher concentration ratios and TDS, the pH will be higher and there will be much less tendency for corrosion.

#### **CONTROLS ALGAE AND BACTERIA**

- Bacteria and algae must attach to something before they can feed and reproduce. The TWT Deposit Control System keeps the bacteria, algae, and their food dispersed in the water, off of surfaces, and away from their biofilm breeding ground.
- Eventually the biofilm will die, too.

#### **SHORT PAYBACK PERIOD**

- The combined reduction of water and chemical costs is enough to pay for the TWT Deposit Control System in as little as 9 to 18 months.
- With the TWT Deposit Control System, the water systems can run at higher concentration ratios, meaning the amount of water removed as blowdown and the corresponding sewer charges are greatly reduced.
- With no chemicals being added, the requirements for pretreatment of blowdown are eliminated.
- Labor costs for maintaining the chemical systems will be reduced.
- Labor costs to clean the vessel surfaces will be reduced.
- Costs to replace corroded parts will be reduced.
- The TWT Deposit Control System requires no maintenance.
- There is little electrical current flow in an electromagnetic system, and so the TWT Deposit Control System costs about 10 cents per day to operate.