

Partial List of Product, Equipment, Energy & Fluid/Water Related Terms

TWT® products and systems provide technologically advanced methods for water and fluid management that are both efficient and cost-effective. Components and subsystems chosen from across the range of treatment methods can be combined in different configurations to provide custom solutions specific to any industry, site or application.

Each product line offers a variety of both standalone and comprehensive treatment solutions for end-to-end fluid management, for all types of applications.

To ensure the greatest level of satisfaction in your work with the TWT®, Fluid Management Products & Systems

- Know the performance capabilities and technical limitations of all products and the proper installation application and treatment solutions.
- Manage Customer Expectation: Verify product/system application, installation, and performance needs, to ensure customers satisfaction.
- Knowing these technical related terms will ensure the appropriate product selection and add credibility to the sales process

■ TWT® RiteFilter Filtration

Filters are designed to trap various kinds of debris and organic particles that will otherwise enter your equipment and/or plumbing system; restrict flow and create a breeding ground for bacteria.

■ TWT® AquaSmart Deposit Control

Deposit Control technology works by producing a complex frequency-modulated waveform. This creates a de-ionizing effect, induced by physical means, which increases the solubility of the minerals and colloids in the liquid and changes the shape, size, and texture of the calcium carbonate crystals. Hard water conditioning & treatment technology.

■ TWT® SunFlair UV Purifiers

As water passes through the UV chamber the UV light attacks and renders harmless bacterial, viral or spore contamination present in the treated water. The out put water is thus disinfected and offers exceptionally high quality for processing, human consumption and use.

■ TWT® AquaClean All-In-One Multi-Process Treatment

TWT Filtration, Microprocessor Deposit Control Technology, Reaction Chamber and UV Disinfection units are combined to provide a start to finish answer to simplified prevention, treatment and management of water line contamination dangers.

■ TWT® ChemFree Pool & Spa Treatment

Through IonGuard disinfection, purification and deposit control technology, the system controls scale deposits, algae, bacteria and corrosion without the need for chemicals. Eliminate the bio-film that serves as a breeding ground for disease-causing bacteria, collecting in your pool, piping, tubing and equipment.

■ TWT® ChemFree HVAC Cooling Treatment

Through ionization, disinfection, purification and deposit control technology control scale deposits, algae, bacteria and corrosion without the need for chemicals. Eliminate the bio-film that serves as a breeding ground for disease-causing bacteria, collecting in your piping, tubing, heating and other related equipment.

Partial List of Product, Equipment, Energy & Fluid/Water Related Terms

Product/Equipment Related Terms:

Cooling Tower

Unit used to cool water by blowing air through the water and causing evaporation.

Chiller

Unit that uses cooled refrigerant to cool air or water.

Evaporative Condenser

Cooling Tower and Condenser in one unit.

Condenser

Unit that uses cooled water to cool a refrigerant or process cooling fluid.

Heat Exchanger

Condenser or Chiller.

Boiler

Unit that heats water to get very hot water or steam.

Sump/Catch Basin

Tank that collects cooled water from a cooling tower.

Hot Water Heater

Residential/Commercial hot water supply

Reaction Chamber

Factory built TWT solenoid coil on pipe for plumbing into water pipe.

Reverse Osmosis

R/O systems employ thin film composite membrane elements for superior performance. Pump pressure is used to supply source water to R/O membranes. These special membranes allow only high quality water to permeate them. In turn, they reject metals, salts, ionic and organic impurities that are processed to waste. Suspended solids are removed by pre-filters, which are standard components on all R/O systems.

Copper Signal Pipe Enhancer

This unit is placed between the controller and the copper pipe solenoid to provide a proper impedance match and to ensure maximum energy transfer between the controller and the solenoid, which ensures enhanced treatment of the fluid.

Dielectric Unions

A non-conductive coupling used between galvanic metals.

“To find out more about our equipment and markets check TWT’s website under industrial applications. www.triangularwave.com”

Condition Related Terms:

Corrosion

Deterioration of metal surfaces caused by water and chemicals in the water.

Bio-Corrosion

Deterioration of metal surfaces caused by acid by-products of bacteria.

Galvanics

The negative reaction produced between dissimilar metals.

Scale

Deposit of calcium carbonate.

Bio-Film

Slime formed by bacteria.

Vander Waals Attraction/Forces

Attractive forces that let colloids group together.

Reaction Zone

Place in the water system where the water goes through a physical or chemical change, and the deposition of scale or biofilm occurs.

Deposit Control

Electro-Magnetic fluid conditioning-chemical free.

Energy Related Terms:

Surface Charge

Ions attached to the surface of a colloid.

OHMS

Measures of electrical resistance.

Frequency

Measure of the number of times per second the electrical wave changes from positive to negative.

Amplitude

The strength or the height of the electrical wave.

Electromagnetic/ Inductive Field

Area of influence of a solenoid.

Current/Amps

Measure of the movement of electricity through a conductor.

Voltage/Volts

Measure of the electromotive force needed to move electrical current through a resistance.

Polarity

The conditions of having opposite poles or charges. A water molecule has polarity because the oxygen side of the molecule is more negatively charged and the hydrogen side is more positively charged.

Ionization

Electronic water treatment in which an electrical current passes between two copper/silver metal electrodes and through the water between the electrodes. In the process copper and silver ions enter the water where they attach to algae (copper) and bacteria (silver).

Ultra Violet Light (UV)

Light from the ultraviolet range of the electromagnetic spectrum. Light of UV wave length is not visible to humans, but it disrupts the DNA of microorganisms.

Electrode

Metal piece connected to electrical current.

Conductance

The ability of a substance to conduct electricity, measured by the ratio of the current to the applied electromotive force.

Testing/Measurement Related Terms:

PH Level/Percentage Hydrogen

Measure of acidity or alkalinity¹ of water.

Langlier Scale

Measure of the corrosivity of water.

Note: Lower pH=Acid=Corrosion

Higher pH=Base=Scale= Less Corrosion

Treatment Zone

Area in the water system where water is affected by the deposit control equipment.

Paddle Testing

Used to measure bacteria floating in the water.

ppm

An abbreviation for parts per million; units which express the concentration of contaminants in water. Commonly used interchangeably with mg/L.

Micron

1 Millionth of a meter.

psi

An abbreviation for pounds per square inch; the units in which we express pressure measurements.

psig

An abbreviation for pounds per square inch gage - Unit for expressing pressure. Commonly called gage pressure.

Micron rating

The term applied to a filter or filter medium to indicate the particle size above which all suspended solids will be removed throughout the rated capacity. As used in industry standards, this is an "absolute," not "nominal" rating.

Nephelometric turbidity² unit

(NTU) An arbitrary unit of measuring the turbidity in water by the light scattering effect of fine suspended particles in a light beam.

Nanometer

1 billionth of a meter.

Coupon Rack Testing

Used to measure corrosivity of the water in a system.

Fluid Related Terms:

Colloid

Suspended particle in water that has an electrical surface charge.

TDS

Total Dissolved Solids. Example: Salt dissolved in water.

TSS

Total Suspended Solids. Example: Dirt and other material that are mixed in the water and make it appear cloudy.

Hardness

Measure of the calcium and magnesium that cause the water to be hard and deposit scale on the water system.

Concentration Ratio

Ratio of minerals in the water system compared to fresh water being added to the system.

Make Up Water

A source of water to replace water lost to evaporation.

Blow Down

Water dumped because it has too many minerals in it [concentration ratio is too high].

Bleed

Another term for Blow Down.

Turbidity

A measure of fine suspended matter in water, usually measured in terms of nephelometric³ turbidity units (NTU).

Alkalinity

A group of chemical elements comprising calcium, strontium, barium, and sometimes beryllium, magnesium, and radium.

Ozone

Ozone is a natural way to purify fluid in many different applications. The ozone generator converts oxygen (O²) into ozone (O³) by the action of the corona discharge system. Ozone is then injected into the fluid where it destroys viruses, bacteria and many other microorganisms.

Soluble

Capable of being dissolved or liquefied.

Saturated

Soaked, impregnated, imbued or charged thoroughly.

#1 See page 3 for definition
#2 See page 4 for definition

#3 See page 3 for definition

Chemistry Related Terms:

Hydrogen Bond

An essentially ionic chemical bond between a strongly electronegative atom and a hydrogen atom already bonded to another strongly electronegative atom. In the case of water the electronegative atoms are the oxygen atoms.

Molecules

A stable configuration of atomic nuclei and electrons bound together by electrostatic and electromagnetic forces to form a compound with unique physical and chemical properties.

Crystals

A three dimensional atomic, ionic or molecular structure, consisting of periodically repeated identically constituted congruent unit cells.

Calcium Carbonate [CaCO₃]

A molecule of calcium carbon and oxygen. The carbon atom bonds with three oxygen atoms to form the carbonate ion.

KDF

High purity copper and zinc filings for filtration purposes.

Precipitate

To cause a solid substance to be separated from a solution.

Hydrate

To chemically combine with water.

Alumina

One of several forms of aluminum oxide. A compound found naturally in soil and rock.

Silica

A crystalline compound of silicon and oxygen. Sand is usually silica.

Nucleation Sites

Small particles that serve as starting points for crystals to form on.

Covalent Bonds

A chemical bond formed by sharing of one or more electrons.

pH

The reciprocal of the logarithm of the hydrogen ion concentration. The pH scale is from zero to 14 and 7.0 is the neutral point, indicating the presence of equal concentrations of free hydrogen and hydroxide ions. pH value below 7.0 indicate increasing acidity, and pH values above 7.0 indicate increasing base concentrations.

Osmotic Pressure

A property of the solution proportional to the amount of dissolved minerals present.

Permeate

The water that has passed through the membrane stage of treatment.

Product Water

The water produced by the treatment system.

Pyrogens

A group of substances of microbial origin that produce an increase in body temperature when injected into humans.

% Recovery

The percentage of feed water that is reclaimed as permeate.

% Rejection

The percentage of the feed water TDS that is prevented from passing through the membrane with the permeate.

Rentenate

The concentrate stream discharge from an ultrafiltration system.

Semi-Permeable Membrane

A very thin sheet or fine fiber of specialty fabricated material with exceedingly small pore size, which is selective in allowing passage of substances through the pores. It will allow passage of some substances, but not others.

TDS

An abbreviation for Total Dissolved Solids, also referred to as dissolved minerals, salts or ionic species, measured in the units of ppm or mg/L.

TFC

An abbreviation for Thin Film Composite, a class of membranes fabricated with different materials in the separation and support layers.

Turbidity

A measure of fine suspended matter in water, usually measured in terms of nephelometric³ turbidity units (NTU).

Turbulent Flow

Fluid flow under such conditions that the fluid is being mixed while flowing.

Ultrafiltration (UF)

The process of removing colloidal and dispersed particles from a liquid by passing the liquid through a membrane under pressure. Separation or removal of particulates of more than 10A and less than 200 angstroms⁴.

Valence

A number indicating the electrical charge of ions. Monovalent ions like sodium (NA⁺) or chloride (Cl⁻) have one positive or negative charge. Divalent ions like calcium (Ca⁺⁺) or sulfate (SO₄⁻) have two positive or negative charges.

Virus

The smallest form of life known to be capable of producing disease or infection, usually considered to be of large molecular size. They multiply by assembly of component fragments in living cells, rather than by cell division, as do most bacteria.

#3 See page 3 for definition

#4 One hundred millionth of a centimeter

Contaminant Glossary Partial List

Chloride– Chloride may make your water taste salty and indicates contamination from an outside source such as salt storage, seawater, or septic waste.

Chlorinated Pesticides– Commonly used agricultural pesticides.

Endosulfan Sulfate	Atrazine
Endrin	Alpha-BHC
Endrin Aldehyde	Beta-BHC
Endrin Ketone	Delta-BHC
Heptachlor	Chlordane
Heptachlor Epoxide	p,p-DDD
Hexachlorobenzene	p,p-DDE
Hexachlorocyclopentadiene	p,p-DDT
Lindane (gamma-BHC)	Dieldrin
Methoxychlor	Endosulfan 1
Toxaphene	Endosulfan 2
Arachlor	Aldrin

Coliform Bacteria– Indicates contamination from an unsanitary condition such as septic waste or surface water entering the water supply.

Copper– Usually associated with the corrosion of copper pipes.

Fluoride– Added to many municipal water supplies, also found naturally. Excessive levels may damage teeth.

Hardness– Calcium and magnesium are the main hardness materials. Although hardness is not a health threat, excessive levels may be harmful to plumbing fixtures and pipes. White deposits around faucet’s and on dishware are often caused by excessive hardness.

Iron– Usually comes from a natural source. High levels of iron may cause a bad taste in the water and cause severe staining of laundry and plumbing fixtures.

Lead– Usually comes from corrosion of pipes and plumbing fixtures. causes numerous health disorders and reduced IQ scores.

Nitrate – Comes from natural decay of organic matter and agricultural runoff.

Nitrite– Similar to nitrate, however nitrite can cause decreased oxygen carrying capacity.

PCB’s– Environmentally persistent compounds that were used in electronic components and power transformers.

Aroclor 1016	Aroclor 1221	Aroclor1232
Aroclor 1242	Aroclor 1248	Aroclor 1254
Aroclor1260		

pH– Indicates weather water is acidic or basic. Acidic water can cause corrosion of plumbing and fixtures, which leads to elevated levels of metals such as lead and copper. High pH can cause scaling of the plumbing system.

Sulfate– Naturally occurring but can indicate contamination of the water supply. Causes gastrointestinal discomfort in individuals who are not accustomed to drinking the water.

Trace Metals– Trace metals may come from industrial contamination or natural deposits.They can cause increased cancer risk, damage to organs and changes in blood chemistry.

Antimony	Chromium
Arsenic	Mercury
Barium	Nickel
Beryllium	Selenium
Cadmium	Thallium

VOC’s– Compounds which are found in many household products, paints, petroleum products and industrial solvents. People who drink water containing these compounds in excess of the MCL could experience damage to liver, kidneys, spleen, or circulatory system, or changes in the blood. There is also an increased risk of cancer associated with most of these compounds.

Benzene	Ethylbenzene
Carbon tetrachloride	Styrene
Chlorobenzene	Tetrachloroethylene
O-Dichlorobenzene	1,2,4,-trichlorobenzene
P-Dichlorobenzene	1,1,1-Trichloroethane
1,2-Dichloroethane	1,1,2-Trichloroethane
1,1-Dichloroethylene	Trichloroethylene
Cis-1,1-Dichloroethylene	Toluene
Trans-1,2-Dichloroethylene	Vinyl Chloride
Dichloromethane	Xylenes
1,2-Dichloropropane	Total Trihalomethanes

Triangularwave Technologies, Inc. (TWT®)

TWT® THE SMART TREATMENT SOLUTION

Enter new markets, introduce new products, manage customer expectations and add more dollars to their bottom line!

TWT The Environmentally Friendly "Green Market" Solution!

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The Triangularwave Technologies, Inc. team consists of a diverse group of bright individuals with years of experience, who combine their talents as a team, revolutionizing the way water/fluid management products & systems are engineered, designed, distributed and installed.

Don't Wait...Contact us today for a free consultation and for information on what TWT system will meet your industry specific application and treatment needs.

Value Added Technology



TWT makes sense from an operational, economical and safety point-of-view.

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