



## POOL GLOSSARY

**ACID:** Liquid (muriatic acid) or dry granular (sodium bisulfate) substance used to lower the pool's pH (toward a more acidic condition) or to lower total alkalinity levels.

**ACID DEMAND:** A titration test used to determine proper amounts of acid (or pH decriaser) to reach correct levels. For example, to lower pH from 8.0 to 7.6, your pool may "demand" 2qts. of acid as an example. It could be more or less than that depending on pool size.

**AIR BLEEDER ASSEMBLY:** Located on the top of the filter and sometimes accompanied by a pressure gauge, the bleeder is opened to release air trapped in the filter.

**ALGAE:** Over 20,000 species known to exist. Algae may form on your pool surfaces or it may bloom in suspension. We typically know algae to be green but it may also be yellow (mustard algae), black, blue-green, or any shade in between. It may form separate spots or seem to grow in sheets. Pink algae is not algae at all but a form of bacteria. Algae are living breathing organisms that need warmth, sunlight, and CO<sup>2</sup> to thrive.

**ALGAECIDE:** Meaning, to kill algae. Algaecides perform best as a backup to a routine sanitation program. They also help to kill airborne spores as they blow into the pool. A variety of algae treatment products are available including copper and silver compounds, poly-quat compounds, chlorine enhancers, and herbicides.

**ALGAE RANGER:** A devise that is placed in the skimmer basket or pump basket that helps control algae growth while reducing the need for chlorine load. It is a device that contains a blend of chelated minerals that enhance the pools water clarity. The name Algae Ranger is unique to El Paso Pool Service.

**ALGAESTAT:** An algaecide kills algae, while an algae stat retards and prevents its genesis and growth.

**ALKALINE:** Alkalis are best known for being bases (compounds with pH greater than 7) that dissolve in water. Alkaline is commonly used as a synonym for base, especially for soluble bases.

**ALKALINITY:** Alkaline refers to the condition where the water's pH is above 7.0 (neutral) on the pH scale. It is the opposite of acidic. Alkalinity is the amount of carbonates and bicarbonates in the water, measured in "parts per million" (ppm) of Total Alkalinity.

**ALUMINUM:** A silvery white and ductile member of the poor metal group of chemical elements

**ALUMINUM SULFATE:** Also known as "alum;" this product is used as a flocculent which attracts suspended particles in the water together (green or cloudy pools). "Alum" sinks everything to the bottom which is then vacuumed to waste. A small amount of "alum" can also be used as a sand filter additive.

**ANION:** A negatively charged ion, which has more electrons in its electron shells than it has protons in its nuclei, is known as an anion due to its attraction to anodes.

**AUTOMATIC POOL CLEANER:** A device which agitates or vacuums debris from the walls and floor of the pool.

**BACKFILL:** The repositioning of the soil after construction of a pool.

**BACKWASH:** The process of thoroughly cleaning the filter medium and/or elements by reversing the flow of water through the filter to waste.

**BACTERIA:** From a health perspective, the most dangerous micro-organisms which may be living in the pool water. Some are pathogens, which can cause infectious diseases.

**BACTERICIDE:** Kills bacteria. Chlorine is a bactericide and germicide. Silver algacides are actually more bactericide, and are useful on pink "algae."

**BALANCED WATER:** Balanced water is the result when all of your chemical parameters are where they should be and thus balance each other. The key components of water balance are pH, Total Alkalinity, Calcium Hardness, and Temperature; as measured using the Langelier Index of water balance.

**BALL VALVE:** A water control device that uses a ball with a hole through the middle of it, which can be turned with an external handle to stop, decrease or increase water flow.

**BASE:** Those chemicals of alkaline nature which will counteract the pH of an acid eventually neutralizing at 7.0. Common bases used around the pool would include Soda Ash, Sodium Bicarbonate, Sodium Carbonate, and Sodium Sesquicarbonate.

**BASE DEMAND:** A titration test used to determine proper amounts of base (pH increaser) to reach correct levels. For example, to raise pH from 7.2 - 7.6, your water may need 2 cups of soda ash.

**BIGUANIDES:** The name for a certain class of sanitizers using the polymer PHMB, the only non-halogen sanitizer available for pool and spa use. "Soft Swim" and "Baquacil" are manufacturers of this technology.

**BICARBONATE:** An intermediate form in the deprotonation of carbonic acid.

**BLOWER:** Plumbed into the spa return line, air is injected to produce bubbles and a hydrotherapy effect in the spa.

**BOOSTER PUMP:** Secondary to the main filter pump, a booster pump is used to power other automatic pool cleaner such as Polaris or Letro.

**BREAKPOINT CHLORINATION:** When you shock your pool, the goal is to reach a high enough level of free-chlorine, measured in ppm, to break apart molecular bonds; specifically, the combined chlorine molecules. When breakpoint is reached with sufficient additions of chlorine, everything in the pool is oxidized.

**BROMAMINES:** A combined bromine - ammonia molecule. Unlike chloramines, which are strong smelling and offer no sanitizing properties, bromamine compounds continue to sanitize.

**BROMINE:** A member of the halogen family, commonly used as a sanitizer in spas, because of its resistance to hot water with rapid pH fluctuations.

**BTU:** British Thermal Unit. A unit of measurement for the use of gas by a gas appliance. Pool heaters are rated by their consumption.

**BUFFER:** A base such as Sodium Bicarbonate (Baking Soda), added to your pool will increase alkalinity which increases the buffering capacity of the pool; your pool's resistance to pH change.

**BUFFERING CAPACITY:** The ability of the pool to resist changes in pH, which prevents water balance. The buffering capacity is given by the alkalinity, a close cousin to pH. If your pH bounces, or resumes previous levels soon after adjustment your buffering capacity is too low.

**CALCIUM:** Calcium is a soft grey alkaline earth metal.

**CALCIUM CARBONATE:** Known as scale, crystalline deposits of calcium may form on your pool surfaces, equipment, or even line your pipes like cholesterol in your arteries. Properly balanced water can prevent this.

**CALCIUM CHLORIDE:** The flaked calcium salt used to raise levels of Calcium Hardness in your pool water.

**CALCIUM HARDNESS:** A titration test is used to determine levels of the mineral calcium dissolved in the pool water.

**CAPACITY:** The total number of gallons of pool water your pool can hold.

**CAPACITOR:** The capacitor is the booster battery for your pool motor. It provides the energy needed while starting, to reach 3450 rpm quickly. Replace your capacitor when the shaft can be spun freely with a wrench or by hand, and when powering the motor, you hear a 'buzz' or a 'hum' from the motor, but no impeller movement. Replace your old capacitor with an exact match to the 'MFD' number on the new capacitor.

**CARBON DIOXIDE:** A gas, which when present in the water, provides necessary food for the growth of algae.

**CARBONATE:** Primary in the makeup of total alkalinity and TDS.

**CARCINOGEN:** Any substance, radionuclide or radiation which is an agent directly involved in the promotion of cancer or in the facilitation of its propagation

**CARTRIDGE:** One type of filtration, the cartridge is a pleated, porous element through which water is passed through.

**CATION:** A positively-charged ion, which has fewer electrons than protons, due to its attraction to cathodes.

**CAVITATION:** A general term used to describe the behavior of voids or bubbles in a liquid. Cavitation is usually divided into two classes of behavior: inertial (or transient) cavitation and non-inertial cavitation. Inertial cavitation is the process where a void or bubble in a liquid rapidly collapses, producing a shock wave. Such cavitation often occurs in pumps and impellers. Non-inertial cavitation is the process where a bubble in a fluid is forced to oscillate in size or shape due to some form of energy input, such as an acoustic field. Such cavitation can be observed in pumps.

**CHANNELED SAND:** When water has worked open "holes" in the sand and is streaming right through (without really going through the sand).

**CHECK VALVE:** A one way flow device used to keep water from flowing back from it's source.

**CHITIN:** A naturally occurring polymer found in the shells of crabs and lobsters. Contained in the product "Sea-Klear." Chitin acts as a coagulant and flocculent for oils, metals, and organic materials.

**CHELATOR:** A chelating agent is a water soluble molecule that can bond tightly with metal ions, keeping them from coming out of suspension and depositing their stains and scale onto pool surfaces and equipment. Similar to sequestering agents, chelators are found in such products as "Resist" and "Sea-Klear."

**CHLORAMINES:** The chlorine molecule is strongly attracted to nitrogen and ammonia. When these two combine they form a chloramine, which are undesirable, foul smelling, space taking, compounds that require shocking the pool water to get rid of.

**CHLORINE:** A member of the halogen family of sanitizers, it's use in swimming pools is in the elemental form of a gas, liquid, granular, or tablet compound. When

added to water it acts as an oxidizer, sanitizer, disinfectant, and all around biocidal agent.

**CHLORINE FREE AVAILABLE:** Free Available Chlorine is that which is active, not combined with an ammonia or a nitrogen molecule, and ready to react to destroy organic material.

**CHLORINE COMBINED:** That portion of total available chlorine left over when free available is subtracted. The measure of chlorine which has already attached itself to other molecules or organisms. Most of this is made up of chloramines.

**CHLORINE TOTAL AVAILABLE:** The sum of combined and free chlorine levels. With a DPD test kit, one determines free available level, then total available. The difference, if any, is the level of combined chlorine.

**CHLORINE GENERATOR:** A device that is attached to the plumbing on a salt pool that converts salt to chlorine.

**CHLORINATOR:** Devices which allow for the safe controlled introduction of chlorine into the water.

**CHLORINE DEMAND:** The quantity of free available chlorine removed during the process of sanitizing. The amount of organic and non-organic material contained in the water will demand a certain level of oxidizer to be destroyed.

**CIRCUIT BREAKER:** A switch which allows manual override of an electrical circuit. It also automatically breaks the circuit when current fluctuations are detected.

**CIRCULATION SYSTEM:** The circuit of plumbing which continuously carries the water out of the pool, through the pump and filter then returns it to the pool.

**CLARIFIER:** A clarifier is a chemical used as a coagulant of suspended micro particles. It helps the filter by clumping smaller particles into filterable sizes.

**COAGULANT:** Chemicals which bind or stick to tiny suspended materials or particles which result in larger clumps that settle to the bottom of the pool making the water clear. Also known as Flocculants.

**CONDUIT:** A pipe, either metal or gray PVC or flexible PVC designed to carry wires from a source (i.e. time clock) to a load (i.e. pump motor).

**CONTAMINANTS:** Any micro-particle or organism which reduces water clarity or quality and may present a health hazard. All sanitizing, filtering, and circulating, is done to reduce and eliminate these.

**COPING:** The capstone on top of the bond beam which finishes the edge around a pool or spa. It may be pre-cast concrete or brick. On vinyl liner pools pre-fabricated coping is usually part of an integrated system for the wall, vinyl liner, and deck.

**COPPER:** An effective algaestat and algaecide. Copper as elemental is used in many pools in products like

**COPPER SULFATE:** Similar to aluminum sulfate, this chemical provides a coagulating and flocculent function in water. Used mainly in ponds, a large amount of copper sulfate would stain a swimming pool.

**CONDITIONER:** Also called Cyanuric Acid (CYA) or a stabilizer, this chemical provides a shield from the sun around the chlorine molecule, extending the efficacy; saving you money.

**CORONA DISCHARGE:** An electrical discharge brought on by the ionization of a fluid surrounding a conductor, which occurs when the potential gradient (the strength of the electric field) exceeds a certain value, but conditions are insufficient to cause complete electrical breakdown or arcing.

**CORROSION:** The effects of a acidic pool environment. One in which the pH and/or alkalinity are very low. Corrosion in the form of etching, pitting, or erosion of pool equipment and surfaces is the result.

**COUPLING:** A plumbing fitting designed to join two pieces of pipe.

**COVER AUTOMATIC:** Solid reinforced vinyl which rolls onto a reel on one end of the pool and attaches on the sides into small aluminum tracks. It can be motorized or hand-crank style. Some models may snap the sides into small anchors placed into the deck providing more shape flexibility. Provides safety (with water pumped off - cover pump), debris protection, and heat/chemical/water retention.

**COVER HARD:** A cover which rests on the edge or coping of the spa or small pool. Provides a barrier to debris and possibly people, while keeping the heat trapped in.

**COVER SOLAR:** Sometimes called a thermal blanket, this cover floats on the surface magnifying the sun's rays to warm the water and prevent chemical heat and water evaporation.

**COVER WINTER:** A barrier to sun and debris, winter covers secure the pool from contamination. These are subdivided below.

**COVER MESH:** These stretch tightly across the pool like a trampoline. They are the only covers which can be called "safety covers" in that the mesh polypropylene allows precipitation to pass through.

**COVER SOLID:** These are usually made of some form of plastic or vinyl and are secured around the edges either by aqua blocks, similar weight, or the edges attach to anchors set in the concrete or wood deck.

**CYANURIC ACID:** A granular chemical added to the pool water which provides a shield to chlorine for protection from UV radiation, which disrupts the molecule, destroying its sanitizing ability.

**DIATOMACEOUS EARTH:** The filtering medium of the DE filter, this dry powder is a compound or sedimentary rock of fossilized or skeletal remains of the ancient plankton or algae-like organisms called diatoms.

**DIATOMACEOUS EARTH FILTER:** A filter tank containing fabric covered grids which hold the DE powder up against the flow of the water creating a filter.

**DICHLORO-S-TRIAZINETRIONE:** a chemical compound. It is an oxidizer, bactericide, algicide, and cleaning agent that reacts with water to form hypochlorous acid, which is related to bleach. Often called Dichlor.

**DISINFECTANT:** Chemicals or processes which work to destroy vegetative forms of microorganisms and other contaminants. Examples are chlorine, bromine, Soft-Swim, and ionizers; also included are copper and silver algaecides.

**DIRECTIONS:** Technical and important health handling instructions that should be read before using any chemicals. Also technical information about proper assembly of other mechanical or electrical devices.

**DIRT DEMAND:** The demand that your pool has for dirt. This level is inversely proportional to available time for cleaning. If you remove the dirt from the pool, you have created a dirt deficit, and the pool will suck dirt out of the air to maintain its dirt demand.

**DIVERTER VALVE:** A valve used to divert or change direction or flow in a pool.

**DPD:** A method of testing for chlorine levels in the pool water. Unlike OTO, DPD testing allows determination of total and free available chlorine levels which through subtraction gives us combined levels.

**DRAIN:** Also called the "main drain," this plumbing fitting is the start of one suction line to the pump and is usually situated at or near the center bottom of the pool.

**DRY ACID:** Sodium bisulfate, a granular form of acid used to lower pH and alkalinity in the water. It is safer and less caustic than muriatic acid. Usually available as a "pH decreaser."

**EFFICACY:** The power to produce an effect. Chlorine's efficacy is affected by many factors, including the sun, water balance, and the water's chlorine demand.

**EFFLUENT:** The water that flows out of the pump on its way through the filter, heating, treating equipment, and then returning to the pool. Also known as the pressure side.

**ELBOW:** A 90 or 45 degree plumbing fitting used to change direction of pipes to adapt to location of filters, heaters from a straight line to almost any position needed.

**ELECTROLYSIS:** A method of separating chemically bonded elements and compounds by passing an electric current through them.

**ENZYMES:** Used in swimming pool formulations designed to break down and digest oils in a pool or spa similar to the way enzymes are used in oil spill clean-up efforts.

**FILL WATER:** Used in filling or adding to the water level. Whether from the hose or from a well, your fill water brings its own chemical makeup and water balance (or lack thereof).

**FILTER:** A device used to remove particles suspended in the water by pumping water through a porous substance or material.

**FILTER ELEMENT:** A device inside a filter tank designed to entrap solids and direct water through a manifold system to exit the filter. Cartridge filter elements and DE filter grids are two examples.

**FILTER MEDIUM:** A finely graded material such as sand, diatomaceous earth, polyester fabric, or anthracite coal that removes suspended particles from water passing through it. OR MORE MODERN IS GLASS PACK.

**FILTER PUMP:** The device that pulls water from the pool and pushes it through the filter on its way back to the pool.

**FILTRATION RATE:** The rate of water pumped through a filter, in gallons per minute (gpm).

**FILM-X:** A compound of citric acid used in cleaning plaster and other pool areas. Safe replacement for muriatic acid.

**FOAMING:** A term used to describe surface foam on your water, esp. in spas/hot tubs. Foaming is caused by high TDS levels working in combination with soft water and oils. Certain low-grade algaecides can foam when added to pool or spa. Use enzymes for foam control.

**FLOCCULENT:** Essentially the same as a coagulant, this chemical (such as alum) is used to combined suspended alkaline material and/or algae into a heavy gel, which sinks to the bottom for vacuuming to waste.

**FLOW RATE:** The quantity of water flowing past a specific point in a specified time (e.g. the number of liters flowing through the filter in 1 hour).

**GATE VALVE:** A valve that has a to be turned to block or allow flow of water. These are the common home valves seen in our hose bibs or shower bath faucets.

**GAS VALVE:** An electronic valve in the pool heater that directs gas flow from the meter to the pilot and the burner tray.



**GASKET:** A gasket is a mechanical seal that fills the space between two objects, generally to prevent leakage between the two objects while under compression. Gaskets are commonly produced by cutting from sheet materials, such as gasket paper, rubber, silicone, metal, or a plastic polymer.

**GROUND-FAULT CIRCUIT-INTERRUPTER:** A GFCI device protects a circuit from branching off by de-energizing the path of electricity very quickly when it senses current loss. An important safety device around water (the pool?).

**GROUT:** a construction material used to embed rebars in masonry walls, connect sections of pre-cast concrete, fill voids, and seal joints (like those between tiles). Grout is generally composed of a mixture of water, cement, sand and sometimes color tint which is applied as a thick liquid and hardens over time, much like mortar.

**GUNITE:** A dry mixture of cement and sand mixed with water applied through a pressure hose producing a dense hard layer of concrete used in building pools.

**HALOGEN:** A member of the family of elements fluorine, bromine, chlorine and iodine.

**HARD WATER:** That water which is high in calcium hardness and other salts which, as such, resists soap being lathered. Also promotes Scale.

**HAZMAT:** A *hazardous material*, a term used almost exclusively in the United States, is any solid, liquid, or gas that can harm people, other living organisms, property, or the environment. Hazmats may be radioactive, flammable, explosive, toxic, corrosive, biohazardous, an oxidizer, a pathogen, an allergen, or may have other characteristics that render it hazardous in specific circumstances.

**HEATER:** A device used to heat the water. It may be electric, fuel operated or solar powered heat.

**HEAT EXCHANGER:** Any device for transferring heat from one medium to another.

**HEAT PUMP:** Like a water heater a device that transfers heat from a source and transfers it to water cycling through it.

**HOT TUB:** Usually considered a circular, wooden vessel filled with heated and circulated water.

**HP:** Horsepower (hp) is the name of several non-metric units of power. The most occurring conversion of horsepower to watt goes  $1 \text{ horsepower} = 745.7 \text{ watts}$ .

**HYDROXIDES:** the most common name for the diatomic anion  $\text{OH}^-$ , consisting of oxygen and hydrogen atoms, usually derived from the dissociation of a base. It is one of the simplest diatomic ions known.

**HYPOCHLORITE:** A family of chlorine compounds such as Calcium Hypochlorite and Lithium Hypochlorite, both granular, and the liquid Sodium Hypochlorite. When these compounds contact water, they release Hypochlorous Acid, the active sanitizing agent.

**HYDROSTATIC PRESSURE:** A force involving built up ground water which creates upward pressure beneath the pool shell.

**HYDROSTATIC RELIEF VALVE:** Fitting(s) installed in the floor of the pool designed to manually or automatically release hydrostatic pressure beneath the pool by allowing ground water into the pool.

**IMPELLER:** The rotating vanes of a centrifugal pump; its action creates the flow of water. The impeller is shaft driven by an electric motor.

**INFLUENT:** The water coming into and up to the impeller from the suction lines. These pipes are under vacuum pressure.

**ION:** An atom, or group of atoms that possess an electrical charge.

**IONIZER:** An ionizer is a device mounted on your return line, and through which water flowing will receive charged metal ions. Manufacturers may use a copper anode and/or silver. Copper is an algacide and algaestat, while silver is known for its properties as a bactericide. Our version is the Ecosmarte system.

**IRON:** Usually introduced into the water from iron plumbing or from well water, Ferric Iron can stain surfaces. A murky Brown color can be visible if Iron is in the water. Shocking with Chlorine can help oxidize or remove.

**JANDY VALVE:** A brand name of a threeway valve, which has simplified pool plumbing.

**JET PUMP:** Used in spas to provide additional thrust into the hydrotherapy jets.

**LADDER BUMPERS:** Rubber caps or inserts which protect the pool plaster or vinyl liner from the sharp steel ends of the ladder.

**LANGELIER INDEX:** Also called the Saturation Index, Mr. Langelier devised a system to determine water balance by assigning values to levels of pH, Total Alkalinity, Calcium Hardness and water Temperature. When all parameters are in balance, the water will neither be corrosive or scaling. The formula is "SI = pH + TF + CF + AF - 12.1."

**LATERALS:** Elongated, capped plastic nipples at the bottom of a sand filter which are slotted to allow for water passage while keeping the sand in the filter tank.

**LIGAND:** An atom, ion, or molecule that generally donates one or more of its electrons through a coordinate covalent bond to, or shares its electrons through a covalent bond with, one or more central atoms or ions (these ligands act as a Lewis base).

**LOAD:** An electric device which consumes energy, placing a load on the source.

**LOW WATER SUCTION:** An influent fitting, typically low on the wall in the deep end of a vinyl liner pool. A cheaper alternative to a main drain.

**MAGNESIUM:** A light, ductile, silver-white, metallic element. Its presence in high non-chelated concentrations can lead to stains & scale when conditions are right

**MINERALS:** Such as Calcium, Manganese, Magnesium, Nickel, Copper, Silver, Iron, Cobalt or Aluminum. Their presence in high non-chelated concentrations can lead to stains & scale when conditions are right.

**MICROORGANISM:** A living, breathing creature in your pool. The purpose of disinfectants are to remove such "infectants." Bacteria, such as E.Coli, shigella, campylobacter and salmonella. Or protozoa, such as cryptosporidium and giardia.

**MECHANICAL SEAL:** A seal behind the impeller which prevents water from running out along the shaft of a motor. aka; pump seal.

**MOTOR:** A machine for converting electrical energy into mechanical energy. Your motor is known as the dry end of the filter pump. It drives the impeller, which moves the water.

**MPV:** A Multiport valve.

**MSDS: Material Safety Data Sheet** is a form containing data regarding the properties of a particular substance. An important component of product stewardship and workplace safety, it is intended to provide workers and emergency personnel with procedures for handling or working with that substance in a safe manner, and includes information such as physical data (melting point, boiling point, flash point, etc.), toxicity, health effects, first aid, reactivity, storage, disposal, protective equipment, and spill handling procedures. The exact format of an MSDS can vary from source to source.

**MULTIPORT VALVE:** A 4 or 6 position valve combining the functionality of several valves into one unit, revolutionizing pool plumbing. The six common functions are described below:

1. **FILTER:** Keep it here 99%, except when backwashing, rinsing or wasting  
**RINSE:** Use this setting for 20 seconds after backwashing to rinse tank  
**RECIRCULATE:** Use this if the filter's broken; at least you're circulating.

**BACKWASH:** Use this setting to reverse the flow in the filter and send water out of the waste line. Make sure valves are open or hoses rolled out  
**CLOSED:** Put here to close off flow from the pool, usually to work on the equipment. Do not operate pump with valve in closed position

2. **WASTE/DRAIN:** Another filter bypass setting, but this setting sends the water out of the waste pipe (hose), instead of returning it to the pool. This setting is used to lower pool water level or to vacuum to waste.

**MURIATIC ACID:** The liquid dilution of Hydrochloric Acid used to lower pH and alkalinity, and to remove mineral stains and scale. Extremely caustic and corrosive.

**NASCENT OXYGEN:** A single oxygen atom, not yet bonded to anything. Extremely powerful oxidizer when harnessed.

**NITROGEN:** When combined with chlorine, nitrogen creates chloramines, which do not belong in our pool. Nitrogen can be found in many swimmer wastes (perspiration, suntan oil, hair tonics, etc.) or be introduced by other means.

**NON-CHLORINE SHOCK:** A granular form of potassium permonosulfate, used to oxidize materials such as microorganisms, contaminants or chloramines.

**O-RING:** A loop of elastomer with a round (o-shaped) cross-section used as a mechanical seal or gasket. They are designed to be seated in a groove and compressed during assembly between two or more parts, creating a seal at the interface.

**OTO:** Another method of testing for free available chlorine levels in your pool, as in an OTO test kit.

**OXIDATION:** The "burning up" of organic waste and compounds in the pool water. It also refers to what you may see on your metal pool surfaces if your water is corrosive. Rust is a form of this kind of oxidation.

**OZONE:** The molecule containing three atoms of oxygen; known to be a very powerful sanitizer. Ozone producing equipment creates this molecule by UV radiation or corona discharge generators.

**pH:** The scale of relative acidity or alkalinity, expressed in logarithmic numbers from 0 - 14, with 7.0 being neutral. What's really being measured is the hydrogen ion concentration. Some would say pH stands for Power of Hydrogen.

**PLASTER:** A common type of interior finish applied over the concrete shell of an in-ground swimming pool.

**PLUMBER'S SNAKE:** Sometimes known as a "toilet jack," is a flexible auger used to remove clogs in plumbing that cannot be loosened with a plunger. Most devices consist of a coiled metal wire with space between the coils at the end. The other end is attached to a device with a crank that rotates the wire as it moves down into the pipe. Drains are cleared by one of several mechanisms:

- The auger end of the wire digs itself into the clog much like a corkscrew, allowing retrieval of the object causing the clog when the snake is pulled out. (Commonly hair, combs, small toys, cloth.)  
The end of the snake breaks up the object, allowing it to pass through the drain. (Commonly tree roots, foam insulation, plastic objects.)
- The snake flails around the inside surface of the pipe, scraping off accumulated matter (ranging from mineral deposits to bacon fat) which was reducing the effective interior diameter of the drain pipe.

The auger should be turned clockwise only, unless it has become jammed in the drain. Not only is this essential for retrieval of foreign objects, but for the longevity of the cable.

**PLUNGER:** The sliding disc assembly that changes valve position in a push-pull valve. For example; up for backwash, down for filtration.

**POTASSIUM PERMONOSULFATE:** A NON-CHLORINE SHOCK used to remove or destroy ammonia and nitrogen compounds. A non-chlorine sanitizer.

**POLYMER:** An algacide / algaestat made up of repeating polymer molecules. Used for green algae and available in varying strengths.

**PPM:** Parts per million. A method of assigning value to certain concentrations of chemicals in the water. For example, alkalinity should be kept at 80-120 parts per million, by weight and in relation to the water it's dissolved in.

**PRECIPITATION:** To precipitate is to come out of solution; become insoluble by result of chemical action. Material forced out of solution, purposefully or accidentally, will then settle, stain or scale, or remain suspended in the water.

**PRESSURE CHECK:** A test for the rate of water flow; also a test for leaks in plumbing by placing a line in question under pressure and waiting for the pressure to drop.

**PRESSURE GAUGE:** A device indicating pressure in a filter system. Provides a determination of how the system is operating, and informs us when service of the filter is required.

**PRESSURE SIDE:** The return side of the plumbing. The section from the pump impeller towards the pool.

**PRESSURE SWITCH:** A switch used in pool heaters which opens when the flow rate is insufficient for safe heater operation. This disrupts the circuit in the heater, preventing it from firing.

**PUMP:** A mechanical wet-end, powered by an electric motor, which causes hydraulic flow and pressure for the circulation of the pool water.

**PUMP STRAINER BASKET:** A device placed on the suction side of the pump, which contains a removable strainer basket designed to trap large debris in the water flow without causing restriction. Sometimes called a Pump Leaf Trap.

**PUSH-PULL VALVE:** A two position valve used for backwashing sand or DE filters.

**PVC:** a poly vinyl pipe used for pool plumbing.

**QUATERNARY AMMONIUM COMPOUND:** A type of algaecide composed of ammonia compounds. Quaternary Ammonium Compound is an effective algaestat for green and blue/green algae.

**RATE OF FLOW:** Quantity of water flowing past a designated point within a specified time of period, measured in gallons per minute (gpm).

**REAGENT:** The chemical indicators used in testing water balance. (All the little bottles or tablets in your test kit).

**RE-BAR:** Reinforcement bar, used to add strength to a concrete. After excavation of an inground pool, a steel cage is formed out of re-bar, and the gunite shell is shot over and surrounding it.

**RESIDUAL:** Usually refers to free available chlorine levels remaining in the pool after initial treatment or activity with contaminants.

**RESTRICTED FLOW:** The term used to describe a condition preventing full flow of water. Restriction can occur with full skimmer or strainer baskets, obstructions in the plumbing, dirty filter, undersized plumbing or equipment, or placing devices like, heaters, cleaners or fountains in the circulation system. Restriction on the suction side creates higher vacuum, (or suction) while on the pressure side creates higher pressure.

**SAND FILTER:** A filter tank, usually fiberglass or ABS plastic, filled with sand and gravel. The pump diffuses water over the top of the sand bed, and forces it through the sand and into the laterals on the bottom.

**SANITIZER:** A chemical agent used to remove unwanted contaminants.

**SCALE:** Usually whitish in color, scale forms on pool surfaces and equipment when mineral salts are forced out of solution. A scaling condition is one in which calcium hardness, pH and/or alkalinity levels are out of balance.

**SEQUESTERING AGENT:** A sequestering agent ties-up minerals tightly in solution, preventing their precipitation, which colors the water and/or stains the pool. Synonymous to chelators, these are commonly called stain & scale chemicals.

**SKIMMER:** A surface skimmer is a plumbing fitting set at water level, containing a weir mechanism and a debris basket. The skimmer is part of the suction side circulation system.

**SKIMMER BASKET:** Beneath the lid, the basket strains debris, as the first line of defense in filtering the water.

**SKIMMER NET:** Attached to a telescopic pole, a leaf rake is a very useful tool in keeping the pool clean. Also called a skimmer net are the flat, "dip and flip" nets, which aren't so useful.

**SHOCK:** As a noun it loosely describes the products used in shocking, such as hypochlorites, potassium permagnatesulfate or hydrogen peroxide. As a verb it describes the act of bringing the sanitizer level up so high that breakpoint chlorination is reached. When breakpoint is reached, a "shock" or perhaps a "lightning bolt" is a better analogy, is sent through the water, tearing apart molecules and slashing through cell walls. Ultimate purification, man.

**SHOTCRETE:** A different type of application of the concrete and sand mix which is used to "shoot the shell". Guniting is pumped dry and mixed with water at the gun, whereas shotcrete is pumped wet.

**SNOWBELT:** The northern half of the United States where freezing temperatures are particularly common.

**SODA ASH:** A base, used to counteract an acidic condition by raising pH.

**SODIUM BICARBONATE** (baking soda): Another base, however its properties will increase alkalinity more than pH. Used to raise Total Alkalinity levels.

**SODIUM BISULFATE:** An granular form of acid, used to counteract a scaling condition by lowering pH and/or alkalinity.

**SODIUM HYPOCHLORITE:** Liquid chlorine used in pools, identical yet stronger than Clorox bleach.

**SODIUM TETRABORATE:** New technology that renders algae incapable of processing carbon dioxide, which they need to live.

**SODIUM DICHLOR:** A granular form of chlorine that is stabilized with cyanuric acid. Used for shocking and super-chlorination.

**SOFT WATER:** Water that has low calcium and/or magnesium content. Soap lathers easily in soft water.

**SOLAR SYSTEM:** Black mats of miniature plastic tubes through which water is pumped, absorbing the heat as it passes through. These mats are roof mounted with up & down plumbing connecting it.

**SOURCE:** Refers to the origination of electrical power. The source for your filter pump (load) is probably a timer clock.

**SPA:** A filtered, hot water vessel with hydrotherapy jets and air induction. Can be portable or installed permanently. Jacuzzi is a brand name.

**STABILIZER:** See Cyanuric Acid. Stabilizers, also called conditioners, can be added directly to your pool to extend your chlorine efficacy. Cyanuric acid is already added to certain "stabilized" products such as Trichlor tablets and Sodium Dichlor.

**STANDPIPE:** Vertical pipe that carries water from the hub and lateral assembly to or from the multiport valve on a top mount sand filter.

**STRAINER BASKET:** The second line of defense is a basket at the pump. The holes in this are smaller than those in a skimmer basket, and prevent the pump impeller from clogging up.

**STRATOSPHERE:** The second layer of Earth's atmosphere, just above the troposphere, and below the mesosphere. It is stratified in temperature, with warmer layers higher up and cooler layers farther down. This is in contrast to the troposphere near the Earth's surface, which is cooler higher up and warmer farther down

**SUCTION SIDE:** The plumbing prior to and carrying water to the pump. This side is under vacuum pressure.

**SUNBELT:** The southern half of the United States where freezing temperatures rarely occur, and high temperatures are particularly common.

**SUPER-CHLORINATION:** Applying 7 - 10 times the normal amounts of chlorine to the pool as an added "boost" for contaminant removal. Some refer to super-chlorinating as being less than shocking, in that breakpoint thresholds are not reached, or the terms may be used synonymously.

**TDS:** See Total Dissolved Solids

**TEE:** A plumbing fitting used to bring two pipes together into one, or vice-versa.

**TEST KIT:** A method used to test the water balance and sanitizing level of your pool water.

**TIME CLOCK:** A mechanical device that controls the timed operation of your electrical equipment, primarily your filter and booster pumps.

**TITRATION:** A **titration** is a technique where a solution of known concentration is used to determine the concentration of an unknown solution. Typically, the titrant (the know solution) is added from a buret to a known quantity of the analyte (the



unknown solution) until the reaction is complete. A method of testing for total alkalinity, calcium hardness and acid/base demand by adding a titrant, drop by drop until a color change is observed.

**TOTAL ALKALINITY:** The ability of the pool water to resist changes in pH. The "buffering" capacity of the water. Additions of Sodium Bicarbonate will increase the levels, expressed in ppm.

**TOTAL DISSOLVED SOLIDS (TDS):** A measure of everything that has ever dissolved in the water; all the matter that is in solution. High TDS levels can oversaturate your water, causing all sorts of reactions.

**TRICHLORO-S-TRIAZINETRIONE:** A chemical compound used as an industrial disinfectant, bleaching agent and a reagent in organic synthesis. This white crystalline powder, which has a strong "chlorine odor," is sometimes sold in tablet or granule form for domestic and industrial use.

**TROWEL:** A pool trowel is a flat-bladed tool with rounded ends used to apply viscous or particulate material coatings to concrete, especially on pool decks.

**TURBIDITY:** is the cloudiness or haziness of a fluid caused by large numbers of individual particles that are generally invisible to the naked eye, similar to smoke in air. It is the suspended particles in the water.

**TURNOVER:** The amount of time it takes your pump to move all the water in your pool through the filter and back again.

**ULTRA VIOLET LIGHT:** Ultraviolet (UV) light is electromagnetic radiation with a wavelength shorter than that of visible light, but longer than soft X-rays. It is so named because the spectrum starts with wavelengths slightly shorter than the wavelengths humans identify as the color violet (purple).

**ULTRA VIOLET LIGHT TREATMENT:** Using UV wavelength radiation to destroy contaminants in water. UV light is also used to create ozone molecules for the same purpose.

**UNDERDRAIN:** The lower collection system in a filter which directs filtered water back towards the pool. It also distributes water in reverse during backwashing. See laterals.

**VACUUM:** Refers to the low pressure condition created in the suction line. Also refers to the cleaning process of sucking leaves, algae and debris from the pool floor.

**VALVES:** A device placed in the plumbing line which restricts or obstructs water flow to create desired hydraulics, or may permit flow in one direction only (as in a

check valve).

**VERMICULITE:** A natural mineral that expands with the application of heat. The expansion process is called exfoliation and it is routinely accomplished in purpose-designed items. Vermiculite is formed by hydration of certain basaltic minerals.

**VENTURI:** Increasing water velocity by restricting pipe size usually accomplished by a spa jet.

**VOLUTE:** A volute is a curved funnel increasing in area to the discharge port. It is often used with impeller pumps. As the area of the cross-section increases, the volute reduces the speed of the liquid and increases the pressure of the liquid. One of the main purposes of a volute casing is to help balance the hydraulic pressure on the shaft of the pump. However, this occurs best at the manufacturer's recommended capacity. Running volute-style pumps at a lower capacity than the manufacturer recommends can put lateral stress on the shaft of the pump, increasing wear-and-tear on the seals and bearings, and on the shaft itself.

**VINYL LINER:** One type of interior pool finish. The liner is draped over a sand or cementitious floor, and locked into the top of the pools wall.

**WEIR:** The device in a skimmer that controls the amount of water coming into the skimmer, and keeps debris inside. That "flapper-gate" thing.