

Glossary of Terms

ACID

A sour chemical substance containing hydrogen with the ability to dissolve metals, neutralize alkaline materials and combine with bases to form salts. Acid is used to lower (decrease) pH and total alkalinity of swimming pool and spa water. Examples are muriatic acid (hydrochloric) and dry acid (sodium bisulfate).

ACID DEMAND

The amount of acid required to bring high pH and total alkalinity down to their proper levels. Determined by the acid demand test.

ACID DEMAND TEST

A reagent test usually used in conjunction with a pH test to determine the amount of acid needed to lower pH and total alkalinity levels.

ACID RAIN

Precipitation having an unusually low pH value (4.5 or lower) caused by absorption of air polluted by sulfur dioxide, carbon dioxide and nitrous oxide.

ACRYLIC

A thermoplastic sheet formed into a mold to make a spa or related equipment. It is first heated and then vacuumed onto the mold.

AIR BLOWER

A mechanical device that forces air through holes in the floor, bubbler ring or hydrotherapy jets in a spa.

AIR-RELIEF VALVE

A brass or plastic, manually operated valve located at the top of a filter tank for relieving the pressure inside the filter and for removing the air inside the filter (called bleeding the filter). Sometimes called a pressure-relief valve.

ALGAE

Microscopic plant-like organisms that contain chlorophyll. Algae are nourished by carbon dioxide (CO₂) and use sunlight to carry out photosynthesis. It is introduced by rain or wind and grows in colonies producing nuisance masses. Algae are not disease-causing, but can harbor bacteria, and it is slippery. There are 21,000 known species of algae. The most common pool types are black, blue-green, green and mustard (yellow or drawn). Pink or red-colored algae-like organisms exist but are bacteria and not algae. Maintaining proper sanitizer levels, shocking and superchlorination will help prevent its occurrence.

ALGAECIDE

Also called algicide - A natural or synthetic chemical designed to kill, destroy or control algae.

ALKALI

Also called base - A Class of compounds which will react with an acid to give a salt. Alkali is the opposite of acid.

ALKALINITY

Also more commonly called total alkalinity. A measure of the pH-buffering capacity of water. Also called the water's resistance to change in pH. Composed of the hydroxides, carbonates and bicarbonates in the water. One of the basic water tests necessary to determine water balance.

ALUM

Any one of several aluminum compounds used in pools to form a gelatinous floc on sand filters or to coagulate and precipitate suspended particles in the water.

AMMONIA

Introduced into the water by swimmers as waste (perspiration or urine) or by other means. Quickly forms foul-smelling, body-irritating chloramines - a disabled, less effective form of chlorine. See chloramines or combined chlorine.

ANTI-FOAM

A chemical added to the water to make the suds or foam go away. These products do not remove the source of the sudsing. Most often, the water must be drained and refilled to remove the soaps, oils and other causes of foaming. Shocking and superchlorination may help prevent foaming.

ASCORBIC ACID

A chemical compound used to remove iron stains from fiberglass and vinyl-liner pools.

AUTOMATIC POOL CLEANER

A pool maintenance system that will agitate or vacuum debris from the pool interior automatically.

AVAILABLE CHLORINE CONTENT

A term used or an index used to compare the oxidizing power of chlorine-containing products to gas chlorine. It permits easy comparison of chlorine compounds.

AVAILABLE CHLORINE

The amount of chlorine, both free and combined in the pool water that is available to sanitize or disinfect the water. Sometimes called residual chlorine.

BACKFLOW

The backing up of water through a pipe in the direction opposite to normal flow.

BACKWASH

The process of thoroughly cleaning the filter by reversing the flow of water through it with the dirt and rinse water going to waste.

BACTERIA

Single-celled microorganisms of various forms, some of which are undesirable or potentially disease-causing. Bacteria are controlled by chlorine, bromine or other sanitizing and disinfecting agents.

BACTERICIDE

A chemical or element that kills, destroys or controls bacteria.

BAKING SODA

Chemically called sodium carbonate. It is a white powder used to raise the pH of pool or spa water.

BALANCED WATER

The correct ratio of mineral content and pH level that prevents the water from being corrosive or scale forming.

BALL VALVE

A simple non-return valve consisting of a ball resting on a cylindrical seat within a liquid passageway.

BASE

Also called basic - A class of compounds which will react with an acid to give a salt. Base is the opposite of an acid. See alkali.

BLEACH

This term usually refers to liquid chlorine (sodium hypochlorite 12% available chlorine). It is

the same chemical used in laundry bleach but pool chlorine is 12% available chlorine while laundry bleach is about 5 to 6% available chlorine.

BLOWER

An electrical device that produces a continuous rush of air to create the optimal bubbling effect in a spa, hot tub or whirlpool. It is usually plumbed in with the hydrotherapy jets or to a separate bubbler ring.

BLUE FINGERNAILS

A condition caused by too much copper in the pool water. Blue fingernails are not caused by chlorine. The copper may get into the water by the practice of placing trichlor tabs in the skimmer. This acidic product will cause low-pH water, which will in turn dissolve metals in the equipment. The dissolved metal (usually copper) then stains hair, fingernails and, eventually, pool walls. It can also be caused by keeping the pH too low or mis-using acid.

BREAKPOINT CHLORINATION

The process of adding sufficient free available chlorine to completely oxidize all organic matter and ammonia or nitrogen compounds. All chlorine added after that point is free available chlorine.

BROMAMINES

By-products formed when bromine reacts with swimmer waste (perspiration or urine), nitrogen or fertilizer. Bromamines are active disinfectants and do not smell, although high levels are body irritants. Bromamines are removed by superchlorination or shock treating.

BROMIDE

A common term for a bromide salt used to supply bromide ions to the water so they may be oxidized or changed into hypobromous acid, the killing form of bromine. Used as a disinfectant.

BROMINATOR

A mechanical or electrical device for dispensing bromine at a controlled rate. Most often a canister or floater filled with tablets of bromine.

BROMINE

A common name for a chemical compound containing bromine that is used as a disinfectant to destroy bacteria and algae in swimming pools and spas. Available as a tablet or as sodium bromide, a granular salt.

BTU

Abbreviation for British Thermal Unit. The amount of heat necessary to raise 1 lb. of water 1 degree Fahrenheit.

BUFFER

A substance or compound that stabilizes the pH value of a solution. It is also the water's resistance to change in pH.

BYPASS

An arrangement of pipes, gates and valves by which the flow of water may be passed around a piece of equipment or diverted to another piece of equipment; a controlled diversion.

CALCIUM HYPOCHLORITE

A compound of chlorine and calcium used as a disinfectant, sanitizer, bactericide, algacide and oxidizer in swimming pool and spa water. It is available as a white granular material usually used for superchlorination or it is available as tablets used in a feeder for regular chlorination. It usually contains 65% available chlorine.

CALCIUM CARBONATE

Crystalline compounds formed in swimming pool and spa water when the calcium, pH and total alkalinity levels are too high. Once formed, the crystals adhere to the plumbing,

equipment, pool walls and bottom. These crystals are better known as scale.

CALCIUM CHLORIDE

A soluble white salt used to raise the calcium or total hardness level in the pool or spa.

CALCIUM HARDNESS

The calcium content of the water. Calcium hardness is sometimes confused with the terms water hardness and total hardness. Too little calcium hardness and the water is corrosive. Too much calcium hardness and the water is scale forming. One of the basic water tests necessary to determine water balance. Minimum level is 150 ppm. Ideal range is 200 to 400 ppm.

CARTRIDGE

A replaceable porous element made of paper or polyester used as the filter medium in cartridge filters.

CARTRIDGE FILTER

A pool or spa water filter that uses a replaceable porous element made of paper or polyester.

CENTRIFUGAL PUMP

A pump consisting of an impeller fixed on a rotating shaft and enclosed in a casing or volute and having an inlet and a discharge connection. The rotating impeller creates pressure in the water by the velocity derived from the centrifugal force.

CHECK VALVE

A mechanical device in a pipe that permits the flow of water or air in one direction only.

CHELATE

(Pronounced KEY-late) - also called sequester - It is the process of preventing metals in the water from combining with other components in water to form colored precipitates that stain the pool walls and bottom or produce colored water.

CHELATED COPPER

Copper algaecides that contain a special ingredient to prevent the copper from staining the pool walls and bottom or producing colored water.

CHEMICAL FEEDER

Any of several types of devices that dispense chemicals into the pool or spa water at a predetermined rate. Some dispense chlorine or bromine while others dispense pH-adjusting chemicals.

CHLORINE NEUTRALIZER

A chemical used to make chlorine harmless. Used in test kits to counteract the bleaching effect of the chlorine or bromine in order to increase the accuracy of pool water tests. Sold as chlorine and bromine neutralizer, it is used to destroy excessive amounts of chlorine or bromine, so the high levels will not affect swimmers.

CHLORAMINES

Undesirable, foul-smelling, body-irritating compounds formed when insufficient levels of free available chlorine react with ammonia and other nitrogen-containing compounds (swimmer and bather waste, fertilizer, perspiration, urine, etc.). Chloramines are still disinfectants, but they are a much weaker, ineffective form of chlorine. Chloramines are removed by superchlorination or shock treating.

CHLORINATOR

A mechanical or electrical device for dispensing chlorine at a controlled rate. Most often a canister or floater filled with tablets of chlorine.

CHLORINE

A term used to describe any type of chlorine compound used as a disinfectant in swimming pool and spa water or to kill, destroy or control bacteria and algae. In addition, chlorine

oxidizes ammonia and nitrogen compounds (swimmer and bather waste).

CHLORINE DEMAND

The amount of chlorine necessary to oxidize all organic matter (bacteria, algae, chloramines, ammonia and nitrogen compounds) in the pool or spa water.

CHLORINE ENHANCER

A chemical compound that when used in conjunction with chlorine makes the chlorine perform better as an algaecide.

CHLORINE GENERATOR

An electrical device that generates chlorine from a salt solution in a tank or from salt added to the pool water.

CHLORINE LOCK

This is a term that implies that an over-abundance of cyanuric acid (stabilizer or conditioner) in the water would cause the chlorine to be all "locked up." This is not true.

CHLORINE RESIDUAL

The amount of chlorine left in the pool or spa water after the chlorine demand has been satisfied.

CLARIFIER

Also called coagulant or flocculant - A chemical compound used to gather (coagulate or agglomerate), or to precipitate suspended particles so they may be removed by vacuuming or filtration. There are two types; inorganic salts of aluminum (alum) or water-soluble organic polyelectrolytes.

CLARITY

The degree of transparency of the water.

COAGULANT

An organic polyelectrolyte used to gather (coagulate) suspended particles in the water.

COMBINED CHLORINE

Undesirable, foul-smelling, body-irritating compounds formed when insufficient levels of free available chlorine react with ammonia and other nitrogen-containing compounds (swimmer and bather waste, fertilizer, perspiration, urine, etc.). Combined chlorine is still a disinfectant, but it is a much weaker, ineffective form of chlorine.

CONDITIONER

Chemically, conditioner is cyanuric acid. It slows down the degradation of chlorine in the water by sunlight. Minimum level is 10 ppm. Too much does not slow down chlorine activity or effectiveness. Conditioner does not protect bromine from sunlight.

COPING

The cap or top lip on the pool or spa wall that provides a finished edge around the pool or spa. It can be formed, cast in place or precast, or prefabricated of extruded aluminum or rigid vinyl. It may also be part of the system that secures a vinyl liner to the top of the pool wall.

COPPER

One of nature's elements, it is used for various parts of equipment and plumbing in swimming pools and spas. Corrosive water caused by misuse of chemicals, improper water balance, or placing trichlor tablets in the skimmer can cause copper to be dissolved from the equipment or plumbing and deposit the precipitates on hair, fingernails or pool walls. High levels of copper also cause green water. Copper is also used as an algaecide. Maximum level is about 0.2 ppm.

COPPER ALGAECIDE

A chemical compound that contains the element copper. Copper sulfate was one of the original copper algaecides. Too much copper in the water can cause green-colored stains.

Newer copper algaecides contain an ingredient that prevents the copper from staining but does not affect copper's ability to kill algae. These special copper algaecides are called chelated copper algaecides.

CORROSION

The etching, pitting or eating away of the pool or spa or equipment. Caused by improper water balance, misuse of acid or acidic products or from soft water.

COUPLING

A plumbing fitting that is used to connect two pieces of pipe.

COVER, HARD-TOP

A cover used on pools, spas and hot tubs that rests on the lip (coping) of the pool or spa deck - not a flotation cover. Used as a barrier to swimmers and bathers, and for maintenance and thermal protection.

COVER, SOLAR

A cover that, when placed on the water's surface of a pool, spa or hot tub, increases the water temperature by absorption and transmission of solar radiation; reduces evaporation and prevents wind-born debris from entering the water.

COVER, WINTER

A cover that is secured around the perimeter of a pool, spa or hot tub that provides a barrier to bathers and debris when the pool, spa or hot tub is closed for the season.

CYANURIC ACID

Also called conditioner and stabilizer. Chemically, conditioner is cyanuric acid. It protects chlorine in the water from being destroyed by sunlight. Minimum level is 10 ppm. Too much does not slow down chlorine activity or effectiveness. Does not protect bromine from sunlight.

D. E. FILTER

Diatomaceous Earth Filter - A filter designed to use diatomaceous earth (D.E.) as the filter medium. The D.E. is added through the skimmer with the pump on, which takes the D.E. and deposits it on a grid. The D.E. then becomes the filter medium.

DECKS

Those areas immediately adjacent to a pool, spa or hot tub that are specifically constructed or installed for use by bathers for sitting, standing or walking.

DEFOAMER

Also called anti-foam - A chemical added to the water to make the suds or foam go away. These products do not remove the source of the sudsing. Most often, the water must be drained and refilled to remove the soaps, oils and other causes of foaming. Shocking and superchlorination may help prevent foaming.

DIATOMACEOUS EARTH

Also called D.E. - A white powder composed of fossilized skeletons of one-celled organisms called diatoms. The skeletons are porous and have microscopic spaces. The powder is added through the skimmer with the pump on and deposits itself on a grid. The powder then becomes the filter medium.

DICHLOR

The common name for sodium dichlor. A fast-dissolving chlorine compound containing chlorine and cyanuric acid (stabilizer or conditioner). It has a neutral pH and is quick-dissolving, so it can be used for regular chlorination or superchlorination.

DIFFUSER

A porous plate, tube or other device through which air is forced and divided into minute bubbles for diffusion in the water. A diffuser can also be an overdrain on a sand filter. A difuser is also used on a closed-face impeller on a pump to concentrate water flow to the

center of the impeller.

DISINFECT

To kill all pathogenic (disease-causing) organisms.

DISSOLVED SOLIDS

Also called TDS or total dissolved solids - A measure of the total amount of dissolved matter in water. Examples are calcium, magnesium, carbonates, bicarbonates, sodium, chlorides and metals. High levels can cause corrosion, colored water or salty taste. Maximum level is usually 2500 ppm for pools. Maximum level for spas is 1500 ppm over starting level.

DIVERTER VALVE

A plumbing fitting used to change the direction or redirect the flow of water. Some diverter valves are used on pool/spa combinations to allow the use of the spa and then switch the flow back to the pool. A brand name diverter valve is called an Ortega valve, which is sometimes used to describe a diverter valve.

DIVING BOARD

A recreational mechanism for entering a swimming pool, consisting of a semi-rigid board that derives its spring from a fulcrum mounted below the board and attached to the deck.

DPD

An indicator reagent used for the determination of free and total chlorine, bromine, ozone and other oxidizers in water. Better than using OTO for chlorine because it measures free chlorine.

DRAIN

This term usually refers to a plumbing fitting installed on the suction side of the pump in pools, spas and hot tubs. Sometimes called the main drain, it is located in the deepest part of the pool, spa or hot tub. It is not a drain, such as a drain on a kitchen sink. Main drains do not allow the water to drain to waste but rather connect to the pump for circulation and filtration.

DRY ACID

Chemically, sodium bisulfate. A dry white crystal that produces acid when added to water. It is used for lowering pH and total alkalinity. Safer to handle than muriatic acid.

EFFLUENT

The water that flows out of a pump, filter or heater, usually on its way back to the pool or spa.

ELBOW

A plumbing fitting shaped at a 90 degree or a 45 degree angle usually made of metal, PVC or some other plastic.

ELECTROLYSIS

An electrochemical reaction causing a black stain normally found around metal fixtures or on the plaster. It is caused by two dissimilar metals being plumbed together or from an improper electrical grounding of pool equipment or lights. Electrolysis also means the decomposition of water and other inorganic compounds in aqueous solution by means of electricity. Chlorine generators use this principle to produce chlorine from salt in the water.

EPA

Abbreviation for the federal Environmental Protection Agency.

ESCUTCHEON PLATE

An ornamental shield, flange or border used around a plumbing fitting, grab rail or light.

FIBERGLASS

Finespun filaments of glass which are available in a rope or mat form. When used in a process with polyester resins, catalysts and hardeners, can be formed or molded into pools, spas and related shapes.

FILTER

A device that removes undissolved or suspended particles from water by recirculating the water through a porous substance (a filter medium or element). The three types of filters used in pools and spas are sand, cartridge and D.E. (diatomaceous earth).

FILTER AID

A chemical compound added to the water or to the filter that allows the existing filter to become more efficient. Examples are alum, water clarifiers and D.E. (diatomaceous earth).

FILTER AREA

The total surface area of the filter medium that is exposed to the flow of water from the pump, expressed in square feet. Examples are: a 36 sq.ft. D.E. filter and a 100 sq.ft. cartridge filter.

FILTER CARTRIDGE

A replaceable porous element made of paper or polyester used as the filter medium in cartridge filters.

FILTER CYCLE

The operating time between cleaning or backwashing cycles of a filter. Also the amount of time the filter has water flowing through it each day expressed in hours.

FILTER ELEMENT

A device within a filter tank designed to trap suspended solids as water flows through it from the pool or spa.

FILTER MEDIUM

The material used in the filter to trap suspended dirt particles as the water is flowing through it. The polyester or paper used in making a cartridge filter element. The sand used in a sand filter. The D.E. (diatomaceous earth) used in a D.E. filter.

FILTER POWDER

A common name for diatomaceous earth (D.E.), used as the filter medium in a diatomaceous earth filter.

FILTER ROCK

Graded, rounded rock and/or gravel used to support the filter medium. Usually used with rapid-rate sand filters.

FILTER SEPTUM

That portion of the filter element consisting of cloth, wire screen or other porous material on which the filter medium or filter aid is deposited. The nylon grid on a D.E. filter is the septum.

FILTER, SAND

A type of filter media composed of hard, sharp silica, quartz or similar particles with proper grading for size and uniformity. The most common grade used is No. 20 in sand filters.

FILTRATION RATE

The rate at which the water is travelling through the filter, expressed in U.S. gallons per minute (gpm) per square foot of filter area.

FIREMAN SWITCH

A mechanical switch located inside the time clock, which opens a circuit and shuts off the heater 10 or 15 minutes prior to shutting off the water circulation pump, allowing the heater to cool down. This helps reduce lime buildup in the heat exchanger.

FLOC

(See flocculation) - The clump or tuft formed when suspended particles combine with a flocculating agent.

FLOCCULATING AGENT

Also flocculant - A chemical substance or compound that promotes the combination, agglomeration, aggregation or coagulation of suspended particles in the water.

FLOCCULATION

The combination, agglomeration, aggregation or coagulation of suspended particles in such a way that they form small clumps or tufts (called floc).

FLOW RATE

The quantity of water flowing past a designated point within a specified time, such as the number of gallons flowing past a point in 1 minute - abbreviated as gpm.

FOAM

A froth of bubbles on the surface of the water. Usually comes from soap, oil, deodorant, hair spray, suntan oil, etc., that is shed into the water as swimmers enter.

FREE AVAILABLE CHLORINE

The amount of free chlorine in the pool or spa water that is available to sanitize or disinfect the water. Sometimes called residual or available chlorine.

GELCOAT

A colored, polyester-resin material applied to the surface of a molded part. The gelcoat hardens to a smooth, durable form and becomes an integral part of the laminate. Fiberglass pools and spas have gelcoat finishes.

GPD

An abbreviation for gallons per day.

GPH

An abbreviation for gallons per hour.

GPM

An abbreviation for gallons per minute.

GRAB RAIL

Also called hand rail - A tubular steel or plastic device that can be gripped by swimmers or bathers for the purpose of steadying themselves. Usually located near the steps in the pool.

GREEN HAIR

A condition caused by too much copper in the pool water. Green hair is not caused by chlorine. The copper may get into the water by the bad practice of placing trichlor tabs in the skimmer. This acidic product will cause low-pH water, which in turn will dissolve metals in the equipment. The dissolved metal (usually copper) then stains hair, fingernails and, eventually, pool walls. It can also be caused by keeping the pH too low or misusing acid.

GROUND-FAULT CIRCUIT INTERRUPTER

Ground-fault circuit-interrupter - Also called a GFI or GFCI- A device intended to protect people. It interrupts (de-energizes) the electrical circuit whenever it detects the presence of excess electrical current going to ground (usually 1/40th of a second and 5/1000th of an ampere).

GUNITE

A mixture of cement and sand sprayed onto contoured and supported surfaces to build a pool. Guniting is mixed and pumped to the site dry, and water is added at the point of application. Plaster is usually applied over the guniting.

GUTTER

An overflow trough at the edge of the pool through which floating debris, oil and other "lighter-than-water" things flow. Pools with gutters usually do not have skimmers.

HALOGENS

The chemical elements either individually or collectively that constitute Group VII B of the Periodic Table of Elements: fluorine, chlorine, bromine, iodine and astatine. Of these, only chlorine and bromine are used as disinfectants and sanitizers in pools and spas.

HAND RAIL

A tubular steel or plastic device that can be gripped by swimmers or bathers for the purpose

of steadying themselves. Usually located near the steps in the pool.

HAND SKIMMER

A screen attached to a frame which is then attached to a telepole used to remove large floating debris, such as leaves and bugs, from the water's surface.

HARDNESS

The amount of calcium and magnesium dissolved in the water. "Water" or "total" hardness refers to the total magnesium and calcium dissolved in the water. Calcium hardness refers to just the calcium. Measured by a test kit and expressed as ppm. The proper range is 200 to 400 ppm.

HEAT EXCHANGER

A device located inside the heater providing for the transfer of heat from the heat source to the water. This is usually a series of metallic tubes with fins located just above the flames.

HEATER

A fossil-fueled, electric or solar device used to heat the water of a pool, spa or hot tub.

HERBICIDE

A chemical compound used to kill or control plant growth or algae. Simazine is a common pool herbicide.

HORSEPOWER

The work done per unit of time. 1 horsepower equals 33,000 foot-pounds of work per minute or approximately 746 watts. Motors for pumps are rated in horsepower.

HOT TUB

A spa constructed of wood with the sides and bottom formed separately and joined together by hoops, bands or rods.

HYDROCHLORIC ACID

Also called muriatic acid - A very strong acid used in pools to lower the pH and total alkalinity. It can also be used for various cleaning needs. Used in "acid washing" a pool. Use extreme care in handling.

HYDROGEN

The lightest chemical element. A component of water, and a frequent product of many chemical reactions. pH is a measure of hydrogen in its ionic form in water.

HYDROGEN ION

The positively charged nucleus of hydrogen atom. The relative degree of acid or base of a solution (called pH) is a measure of hydrogen ions.

HYDROGEN PEROXIDE

An unstable, colorless, heavy liquid used as a bleach in industry and as an antiseptic in households. It is used as an oxidizing agent in pools and spas. May also be used to de-chlorinate pool or spa water.

HYDROJET

A fitting in the pool or spa on the water return line from the equipment that blends or mixes air and water, creating a high-velocity, turbulent stream of air-enriched water.

HYPOBROMOUS ACID

The most powerful disinfecting form of bromine in water. Sometimes called the killing form of bromine.

HYPOCHLORITE

The name given to a family of chlorine containing compounds, including calcium hypochlorite, sodium hypochlorite and lithium hypochlorite, that are used as disinfectants and sanitizers in pool and spa water.

HYPOCHLOROUS ACID

The most powerful disinfecting form of chlorine in water. Sometimes called the killing form of chlorine.

IMPELLER

The rotating member of a pump. The part of the pump that moves the water.

INFLUENT

The water entering the pump, the filter or other equipment of space. Water going into the pump is called in influent, while water leaving the pump is called the effluent.

INLET

A fitting in the pool or spa on the water return line from the equipment that water returns to the pool. Usually the last thing on the return line.

IONIZER

A water-sanitation device that uses electricity to generate metal ions, which are dispersed in the water. It works by passing a low-voltage DC current through a set of metallic (usually copper and silver) electrodes placed in line with the circulation equipment. The copper is an algacide, while the silver is a bactericide. Does not remove swimmer waste.

IRON

Iron in water causes the water to be brown- or green-colored. Can be controlled by the addition of a sequestering agent or a chelating agent. Water can be tested with an iron test kit.

ISOCYANURATES

Also called stabilized chlorine - A family of chlorine pool sanitizers that contain conditioner (cyanuric acid or isocyanuric acid) to protect the chlorine from the degrading UV rays in sunlight. The most common types are sodium dichlor and trichlor. The granular form is dichlor, which is fast- dissolving and can be used for regular chlorination or superchlorination by broadcasting into the pool or spa. Tablet or stick form is trichlor (which is usually used in a chlorine feeder - either the floating type or the in-line erosion type) used for regular chlorination only.

JACUZZI

A brand name of a spa or whirlpool. The term has been used so frequently to describe a generic (just like Kleenex, Xerox or Scotch Tape) spa, that Jacuzzi has come to mean spa.

LADDER

A structure for climbing up or down; consists of two parallel sides joined by a series of crosspieces that serve as footrests. It is used for getting in and out of the pool. A double-access ladder straddles the pool wall of an above-ground pool. An in-pool ladder is located in the pool only.

LEAF BAGGER

A device that attaches to a telepole and a garden hose. Pressure from the garden hose creates a venturi by which leaves and large debris are drawn into a large mesh bag.

LIGHT NICHE The area in a pool or spa that houses the underwater light fixture.

LINER

Also called vinyl liner - The vinyl membrane that acts as the container to hold or contain the water.

LIQUID ACID

31.45% hydrochloric acid) - also called muriatic acid - It is used for lowering pH, total alkalinity and for various cleaning needs. It is also used for acid washing.

LIQUID CHLORINE

A sodium hypochlorite solution. Usually provides 10 to 12% available chlorine; has a pH of 13 and requires that small amounts of acid be added to the pool to neutralize the high pH. Good

for regular chlorination and superchlorination.

LITHIUM HYPOCHLORITE

A dry, granular chlorinating compound with an available chlorine content of 35%. It is fast-dissolving and can be used to superchlorinate vinyl-liner pools, painted pools or fiberglass pools as well as spas and hot tubs.

MAGNESIUM HARDNESS

A measure of the amount of magnesium dissolved in the water. It is part of total or water hardness. It also causes scale if levels are too high.

MAIN DRAIN

This term usually refers to a plumbing fitting installed on the suction side of the pump in pools, spas and hot tubs. Sometimes called the drain and is located in the deepest part of the pool, spa or hot tub. It is not a drain, such as a drain on a kitchen sink. Main drains do not allow the water to drain to waste but rather connect to the pump for circulation and filtration.

MAKE-UP WATER

This is sometimes called "tap" or "refill" water. It is the water used to replace water lost to evaporation, splash-out, leaks or swimmer drag-out in the pool.

MANIFOLD

The branch pipe arrangement that connects several input pipes into one chamber or one chamber into several output pipes. A filter manifold connects several input pipes from the filter septa back into one common pipe.

MARCITE

Originally a brand name for a white plaster finish coat from 1/8th to 1/2 inch thick applied over the gunite or shotcrete.

MICRON

A unit of length equal to 1 millionth of a meter - it is .000394 of an inch. Microns are used to describe the pore size of filter media. Sand filters have openings of 25 to 30 microns; cartridge filters have openings of 8 to 10 microns; and D.E. (diatomaceous earth) filters have openings of 1 to 5 microns. Humans, without magnification, can see objects 35 microns or larger. A granule of table salt is between 90 to 110 microns.

MINERAL

Any substance that is neither animal or vegetable. It is any class of substances occurring in nature, usually comprising of inorganic substances, such as quartz or feldspar, of definite chemical composition and definite crystal structure. It sometimes includes rocks formed by these substances. Ground water dissolves these rock substances, and the dissolved minerals are present in tap water. Depending on the kinds of rocks the water comes in contact with, the minerals dissolved in the water may be just a few or they may be many. Water hardness is mostly comprised of these minerals.

MULTIPOINT VALVE

Also called a rotary-type backwash valve - This valve replaces as many as 6 regular gate valves. Water from the pump can be diverted for various functions by merely turning the valve handle. The water may be sent to waste, used for backwashing, bypassing the filter for maximum circulation, for normal filtration, filtering to waste (rinse), or the valve may be closed to not pass water. The pump must be off before changing a valve setting.

MURIATIC ACID

(31.45% hydrochloric acid) - Also called liquid acid - An acid used to reduce the pH and alkalinity levels in pool water. It is also used in acid washing, a process that removes stains and scale from pool plaster.

NEUTRALIZER

A chemical used to make chlorine or bromine harmless. Used in test kits to counteract the bleaching effect of the chlorine or bromine in order to increase the accuracy of pool water tests. Sold as chlorine and bromine neutralizer, it is used to destroy excessive amounts of chlorine or bromine, so the high levels will not affect swimmers.

NITROGEN

A gas that causes algae to bloom and disables chlorine. It is brought into the water each time it rains. Maintaining proper chlorine levels will prevent nitrogen from becoming a problem. Superchlorination will remove nitrogen and its related compounds.

NON-CHLORINE SHOCK

A term given to a class of chemical compounds that are used to oxidize or shock the water (destroy ammonia, nitrogen and swimmer waste). They contain no chlorine or bromine and do not kill living organisms. Swimmers may re-enter the water in only 15 minutes after adding a non-chlorine shock.

NORYL

The brand name for a thermoplastic resin used in the manufacture of certain pump components and various other pool equipment fittings.

ORGANIC

Refers to volatile, combustible and sometimes biodegradable chemical compounds containing carbon atoms bonded together with other elements. The principal groups of organic substances found in water are proteins, carbohydrates, fats and oils. See organic waste.

ORGANIC WASTE

Also called swimmer or bather waste - All of the soap, deodorant, suntan lotion, kipstick, makeup, cologne, body oils, sweat, spit, urine, etc., brought into the water. They also form chloramines, which are foul-smelling and body irritants. Requires large amounts of chlorine or non-chlorine shock to destroy.

ORP

An abbreviation for oxidation reduction potential. It is a measurement of a body of water's ability to oxidize contaminants. Measured with an electrode and an electronic meter. It is an indication of the sanitizing level or degree of safety from disease in the water. Measured in millivolts with the accepted minimum level being 650 mV (millivolt).

OTO

Abbreviation for orthotolidine. A chemical reagent used to test the total chlorine level in pool and spa water. It does not measure free available chlorine. See DPD.

OVER-ACID

An incorrect term used to describe water that is acidic or water that has a pH lower than 7.2.

OVERDRAIN

Also called a diffuser or distributor - An internal sand filter device that evenly distributes influent pool water over the sand filter bed.

OXIDATION

To rid the water of ammonia, nitrogen compounds and swimmer waste (organic compounds). These organic compounds disable chlorine, are body irritants and have a foul smell. Removal is accomplished by superchlorination or by shock treating with a non-chlorine oxidizer.

OXIDIZER

A non-chlorine shocking compound that removes or destroys built-up contaminants and chloramines in pool water without raising chlorine levels as required when "superchlorinating."

OZONE

A gaseous molecule comprised of 3 atoms of oxygen. It is generated by the exposure of air or oxygen to either ultraviolet rays or electricity and is used for oxidization of water contaminants.

PATHOGENIC ORGANISM

An organism that causes disease.

PETCOCK

A small, manually operated faucet or valve for draining off liquids or releasing air pressure. The air-relief valve on a filter is an example.

PHENOL RED

A chemical reagent dye used to test for pH. It can measure pH from 6.8 to 8.4.

PLASTER

A mixture of white cement and white marble dust used as an interior finish, which can be tinted, colored or left white; applied to the gunite or shotcrete of a pool or spa.

POLYMER

A substance made of giant molecules formed by the union of simpler molecules. Many water clarifiers are made from organic polymers. An example would be polymerized ethylene, called polyethylene.

POTASSIUM PEROXYMON

Potassium Peroxymonosulfate - The active ingredient and chemical name of a non-chlorine shock treatment or non-chlorine oxidizer. Does not kill bacteria or algae but it will oxidize or destroy ammonia, nitrogen and swimmer waste. It has a low pH, and it does not increase chlorine or bromine levels the way that superchlorination does, so water may be entered in 15 minutes after addition. It will also reactivate bromine to its killing form, hypobromous acid.

PRECIPITATE

A substance separating, in solid particles, from a liquid as a result of a chemical or physical change. It also means to form a precipitate.

PRECOAT

Depositing diatomaceous earth (D.E.) onto the filter grids or elements.

PRESSURE GAUGE

A gauge with an analog dial indicating the pounds per square inch (psi) of pressure that has built up within a closed container, such as a filter.

PUMP

A mechanical device, usually powered by an electric motor, which causes hydraulic flow and pressure for the purpose of filtration, heating and circulation of pool and spa water. Typically, a centrifugal pump is used for pools, spas and hot tubs.

PUMP CAPACITY

The volume of liquid a pump is capable of moving during a specified period of time. This is usually gallons per minute (gpm).

PUMP CURVE

Also called a pump performance curve - A graph that represents a pump's water flow capacity at any given resistance.

PUMP STRAINER BASKET.

Pump Strainer Basket - A device placed on the suction side of the pump, which contains a removable strainer basket designed to trap debris in the water flow without causing much flow restriction. Sometimes called a "hair-and-lint trap."

QUATS

Quaternary Ammonium Compounds - Also called Quats - The chemical compounds of ammonia used as algacides and algaestats.

RATE OF FLOW

The quantity of water flowing past a designated point within a specified time, such as the number of gallons flowing past a point in 1 minute - abbreviated as gpm.

REAGENTS

The chemical agents, dyes, indicators or titrants used in testing various aspects of water quality.

RESIDUAL BROMINE

The amount of measurable bromine remaining after treating the water with bromine. The amount of bromine left in the pool or spa water after the bromine demand has been satisfied.

RESIDUAL CHLORINE

The amount of measurable chlorine remaining after treating the water with chlorine. The amount of chlorine left in the pool or spa water after the chlorine demand has been satisfied.

SAND

This usually refers to the filter medium used by a sand filter. The grade most often specified by filter manufacturers is grade No. 20 with a particle size of 45 to 55 mm (millimeters).

SAND FILTER

A filter using sand or sand and gravel as the filter medium.

SANITIZE

To render sanitary: to kill all living things, including bacteria and algae. Similar to sterilize.

SCALE

The precipitate that forms on surfaces in contact with water when the calcium hardness, pH or total alkalinity levels are too high. Results from chemically unbalanced pool and spa water. Scale may appear as grey, white or dark streaks on the plaster, fiberglass or vinyl. It may also appear as a hard crust around the tile.

SCUM

The extraneous or foreign matter which rises to the surface of the water and forms a layer or a film there. It can also be a residue deposited on the tile or walls of the pool or spa. Sources of scum are soap, oil, deodorant, hair spray, suntan lotions and others.

SEDIMENT

The solid material settled out from the water.

SEPTUM

That portion of the filter element consisting of cloth, wire screen or other porous material on which the filter medium or filter aid is deposited. The nylon grid on a D.E. filter is the septum.

SEQUESTERING AGENT

Also called chelating agent - A chemical that will combine with dissolved metals in the water to prevent the metals from coming out of solution (precipitating or causing stains). May also be a chemical that removes dissolved metals from water.

SHOCK TREAT

The practice of adding significant amounts of an oxidizing chemical - (usually non-chlorine oxidizers, such as sodium persulfate or potassium peroxydisulfate) - to the water to destroy ammonia and nitrogen compounds or swimmer waste.

SHOTCRETE

A mixture of sand and cement sprayed onto contoured and supported surfaces to build a pool or spa. Plaster is applied over the shotcrete. Shotcrete is premixed and pumped wet to the construction site.

SILT

Soil particles having diameters between 0.004 and 0.062 mm (millimeters). Sometimes they may be too small to be trapped by the circulation system. In those cases, a clarifier or an

alum product may be needed.

SIMAZINE

A chemical substance used in swimming pools and spas as an herbicide or algaecide. Mainly used for killing black algae.

SKIMMER

A device installed through the wall of a pool or spa that is connected to the suction line of the pump that draws water and floating debris in the water flow from the surface without causing much flow restriction.

SKIMMER BASKET

A removable, slotted basket or strainer placed in the skimmer on the suction side of the pump, which is designed to trap floating debris in the water flow from the surface without causing much flow restriction.

SKIMMER WEIR

Part of a skimmer that adjusts automatically to small changes in water level to assure a continuous flow of water to the skimmer. The small floating "door" on the side of the skimmer that faces the water over which water flows on its way to the skimmer. The weir also prevents debris from floating back into the pool when the pump shuts off.

SLURRY

Water or a liquid containing a high concentration of suspended solids. Diatomaceous earth (D.E.) is usually added to the filter as a slurry by mixing a small amount of D.E. in a bucket of water and then pouring the slurry into the skimmer with the filter on.

SODA ASH

(Sodium Carbonate) - A chemical used to raise pH in pool and spa water..

SODIUM BICARBONATE

A chemical used to raise total alkalinity in pool and spa water with only a slight affect on the pH.

SODIUM BISULFATE

(dry acid) - A chemical used to lower the pH and total alkalinity. 2 1/2 lbs. of dry acid are equal to 1 quart of muriatic acid.

SODIUM BROMIDE

A salt of bromine. It is used to establish a bromine "bank" in pool and spa water prior to beginning the use of bromine tablets.

SODIUM CARBONATE

(soda ash) - A chemical used to raise the pH in pool and spa water.

SODIUM DI-CHLOR

A fast-dissolving, granular, stabilized organic chlorine compound providing either 56% or 63% available chlorine. Used for regular as well as superchlorination. Contains an ingredient (cyanuric acid or stabilizer) that prevents the chlorine from being destroyed by the ultraviolet (UV) rays of the sun. Recommended for use in vinyl-liner, painted or fiberglass pools and acrylic or fiberglass spas.

SODIUM HYPOCHLORITE

Liquid chlorine. Usually provides 10% to 12% available chlorine; has a pH of 13 and requires that small amounts of acid be added to the pool to neutralize the high pH. Good for regular chlorination and superchlorination. Not recommended for spas. Does not contain conditioner or stabilizer to protect it from sunlight, but it is protected if stabilizer or conditioner is already in the water.

SODIUM PERSULFATE

Active ingredient and chemical name of a non-chlorine shock treatment or non-chlorine

oxidizer. Does not kill bacteria or algae but it will oxidize or destroy ammonia, nitrogen and swimmer waster. Does not increase chlorine or bromine levels the way that superchlorination does, so water may be entered in 15 minutes after addition. It will not reactivate bromine.

SODIUM SESQUICARBONATE

A chemical mixture of equal parts of soda ash and sodium bicarbonate used to increase pH and total alkalinity in pool and spa water. It has a pH of 10.1.

SODIUM SULFITE

A chemical used to neutralize or de-chlorinate pool and spa water.

SODIUM THIOSULFATE

A chemical used to neutralize or de-chlorinate pool and spa water.

SODIUM TRICHLOR

(Sodium Trichlorotriazinetrione) - Potent - 90%+ available chlorine - (stabilized), found in tablet form, and dispensed in feeders, both floating and automatic. Very acidic.

SOFT WATER

Water that has a very low calcium and magnesium content (water hardness) - usually means less than 100 ppm or 6 grains. Also water that has gone through a water softerer. Pools and spas should never be filled with soft water from a softener. Water with less than 100 ppm of hardness should be increased to a minimum of 150 to 200 ppm using calcium chloride.

SOLAR COVER

A cover that, when placed on the water's surface of a pool, spa or hot tub, increases the water temperature by absorption and transmission of solar radiation; reduces evaporation and prevents wind-borne debris from entering the water.

SOLAR HEATING SYSTEM

Typically, this consists of panels or coils of plastic or metal through which water passes to increase the temperature from the sun's radiant heat.

SOURCE WATER

Also called "tap" water - It is the water used to fill or refill the pool or spa.

SPRING BOARD

Also called "diving" board - A recreational mechanism for entering a swimming pool consisting of a semi-rigid board that derives its spring from a fulcrum mounted below the board and attached to the deck.

STABILIZED CHLORINE

A family of chlorine pool sanitizers that contain conditioner (cyanuric acid or isocyanuric acid) to protect the chlorine from the degrading UV rays in sunlight. Most common types are sodium dichlor and trichlor. The granular form is dichlor which is fast-dissolving and can be used for regular chlorination or superchlorination by broadcasting into the pool or spa. Tablet or stick form is trichlor (which is usually used in a chlorine feeder - either the floating type or in-line erosion type) used for regular chlorination only.

STAIN

A discoloration or a colored deposit on the walls or bottom of a swimming pool or spa. Most often, stains are metals, such as iron, copper & manganese. They may appear as green, gray, brown or black. They may even discolor the water. Sometimes a sequestering agent or chelating agent will remove them. If not, usually an acid wash is necessary to remove them from the walls & bottom. The metals get in the water because the pH was too low or someone has added a low pH chemical directly into the circulation system. The low pH chemical dissolves a small amount of metal from the equipment. The metals begin to come out of solutions & deposit or stain the walls & bottom. Stains are sometimes confused with scale.

STAIN INHIBITOR

Also called sequestering or chelating agent- A chemical that will combine with dissolved metals in the water to prevent the metals from coming out of solution (precipitating or causing stains). May also be a chemical that removes dissolved metals from water.

SUPERCHLORINATION

The practice of adding an extra large dose (5 to 10 ppm) of chlorine to the water to destroy ammonia, nitrogen and swimmer waste, which can build up in the water. This level of chlorine is required to destroy all of the combined chlorine in the water, which is called breakpoint chlorination.

SURFACTANT

A soluble chemical compound that reduces the surface tension between two liquids. It is used in many detergents and soapy cleaning compounds.

SUSPENDED SOLIDS

Insoluble solid particles that either float on the surface of or are in suspension in the water, causing turbidity. They may be held in suspension by agitation or flow. They may be removed by filtration, but if the particles are too small, they may not be trapped by the filter. In these cases, a clarifier or alum may be needed to remove them.

TEE

A plumbing fitting in the shape of a "T" used to connect pipes.

TELEPOLE

A long-handled aluminum pole, which extends in length, which various pool cleaning tools, such as brushes or vacuums, may be attached.

TEST KIT

An apparatus or device used to monitor specific chemical residuals, levels, constituents or demands in pool or spa water. Kits usually contain reagents, vials, titrants, color comparators and other materials needed to perform tests. The most common pool and spa water tests are: pH, total alkalinity, free available chlorine, water hardness, cyanuric acid, iron and copper.

TEST STRIPS

Small plastic strips with pads attached that have been impregnated with reagents that can be used to test pool water for residuals, levels, constituents or demands. The strips are usually dipped in the water, and the resulting colors of the pads are compared to a standard set of colors to determine concentration.

TIME CLOCK

A mechanical or electrical device that automatically controls the periods that a pump, filter, heater, blower, automatic pool cleaner or other electrical devices are on or off.

TOTAL ALKALINITY

The total amount of alkaline materials present in the water. Also called the buffering capacity of the water. It is the water's resistance to change in pH. Low total alkalinity causes metal corrosion, plaster etching and eye irritation. High total alkalinity causes scale formation, poor chlorine efficiency and eye irritation.

TOTAL CHLORINE

The total amount of chlorine in the water. It includes both free available and combined chlorine.

TOTAL DISSOLVED SOLIDS

Total Dissolved Solids - Also called TDS - A measure of the total amount of dissolved material in the water. It is comprised of the spent or carrier chemicals added every time chemicals are added, as well as the hardness, alkalinity, chlorides, chlorides, sodium, magnesium, calcium,

etc. Maximum amount in pools is 2500 ppm. Maximum in spas is 1500 over starting TDS. The only way to effectively lower TDS is to drain part or all of the water and replace it.

TRICHLOR

A slow-dissolving, tableted or granular, stabilized organic chlorine compound providing 90% available chlorine. Used for regular chlorination but must be dispensed using a floating feeder or an in-line feeder (chlorinator). Trichlor contains an ingredient (cyanuric acid or stabilizer) that prevents the chlorine from being destroyed by the ultraviolet (UV) rays of the sun. Trichlor has a pH of 2.8, and regular trichlor tabs should not be placed in the skimmer as the low pH will corrode the metal components in the equipment.

TURBIDITY

The cloudy condition of the water due to the presence of extremely fine particles in suspension that cannot be trapped by the filter because they are too small. Adding a clarifier, such as an organic polymer or alum, will coagulate the particles and make the filter more efficient.

TURNOVER

Also called turnover rate - The period of time (usually in hours) required to circulate a volume of water equal to the volume of water contained in the pool or spa. Pool capacity in gallons, divided by pump flow rate in gallons per minute (gpm), divided by 60 minutes in 1 hour, will give hours for 1 turnover.

UNDERDRAIN

Also call filter laterals or lower collection system - Slotted, finger-like tubes that are attached to a sand filter manifold. The slots are on the bottom side to prevent the sand from passing through. Water comes into the filter tank, through the sand, into the underdrain, and then back to the pool.

UNDERWATER LIGHT

A fixture designed to illuminate a pool or spa from beneath the water's surface.

VACUUM

This term can be used to define any number of devices that use suction to collect dirt from the bottom and sides of a pool or spa. Most common is a vacuum head with wheels that attaches to a telescopic pole and is connected to the suction line usually via the opening in the skimmer. It must be moved about by a person, and debris is collected in the filter.

VENTURI

A fitting or device that consists of a tube constricted in the middle and flared on both ends. A fluid's velocity will increase and a fluid's pressure will decrease while passing through the constriction. Placing a tube or pipe at the constriction point creates a vacuum. Fluid or air can then be drawn in through the tube. A hydro-therapy jet draws air in and mixes it with the water using this principle.

VINYL LINER

The vinyl membrane that acts as the container to hold or contain the water.

WATER CLARIFIER

Also called coagulant or flocculant - A chemical compound used to gather (coagulate or agglomerate) or to precipitate suspended particles so they may be removed by vacuuming or filtration. There are two types; inorganic salts of aluminum (alum) and other metals or water-soluble organic polyelectrolytes.

WEIR

Also called skimmer weir - Part of a skimmer that adjust automatically to small changes in water level to assure a continuous flow of water to the skimmer. The small floating "door" on the side of the skimmer that faces the water over which water flows on its way to the

skimmer. The weir also prevents debris from floating back into the pool after the pump shuts off.

pH

Potential Hydrogen - Indicates the level of acidity or alkalinity of water on a scale ranging from 0-15. A low pH causes etched plaster, metal corrosion and eye irritation. A high pH causes scale formation, chlorine inefficiency and eye irritation. The ideal range for pH in swimming pools is 7.4 to 7.6.

ppm

An abbreviation for parts per million. It is a weight-to-weight expression. It means 1 part in 1 million parts, such as 1 lb. of chlorine in 1 million lbs. of water. Many of the common pool water tests, as well as acceptable ranges, are stated as ppm. For example, free available chlorine should be kept between 1.0 and 3.0 ppm; total alkalinity should be between 80 and 120 ppm; and water hardness should be between 200 and 400 ppm.

psi

An abbreviation for pounds per square inch.