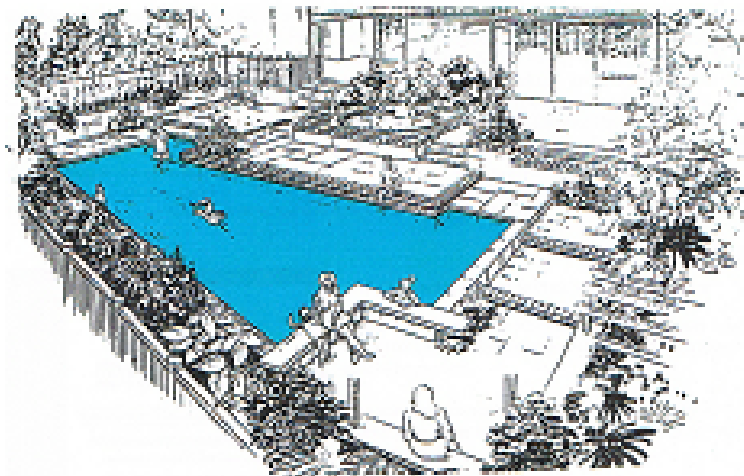


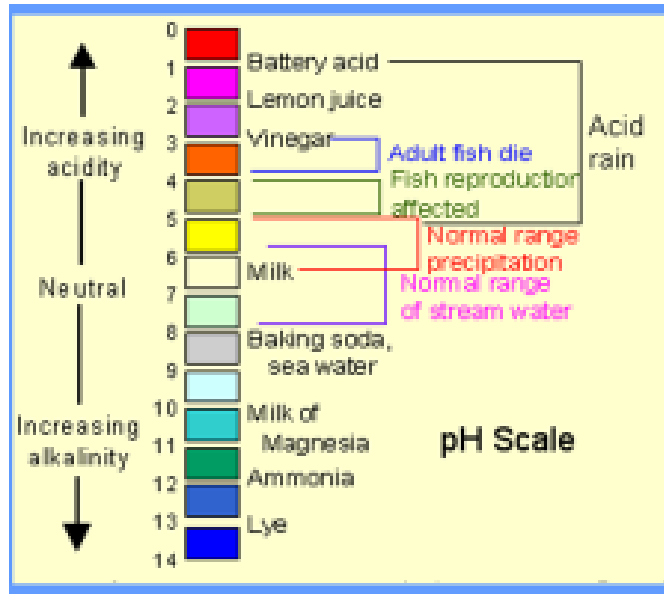


The GENERIC
POOL OWNER'S MANUAL

**POOL TERMS
DICTIONARY**



Edited by LE(Larry)Ogden - Dip Pool Tech (Hon)
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The measure of pH is from 0 (ACID) to 14 (BASE) and keeping within recommended guidelines is very important in keeping your swimming pool healthy!

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POOL TERMS DICTIONARY - It Helps if you understand the terms and names used!

Most of the following terms are used throughout this manual, and are common to the swimming pool industry. The following abbreviated summary may prove useful to you in understanding the care and maintenance of swimming pools. NOTE: a.k.a. means "Also Known As"

ACID:

Common acids for pool use include Sodium Bisulphate (pH Decrease a.k.a "dry acid") and Hydrochloric Acid and are used to lower pH and for service work such as cleaning Salt Cells (if you have a salt chlorinator fitted) Adding Acid will also lower the TA and Calcium Hardness, so a further treatment of Water Neutraliser (Bicarbonate) will be needed to restore pool water balance. Acid has a pH of 0 (Zero) on a scale of 0 - 14 (pH 14 being Base or Alkaline) A pH of 7 is Neutral, anything lower is considered Acidic, anything above is considered Base)

ALKALINITY INCREASE

A pool chemical (usually sodium bicarbonate) which will increase the pH and alkalinity of a swimming pool. Pools should be kept in the middle of the range 7.2 - 7.8 (i.e. 7.6) for prolonged life of the interior finish. Also referred to as " pH Increase"

ALGAE:

Pronounced "al - gee" - A microscopic grass-like plant life that thrives in warm swimming pools and multiplies very rapidly especially in warm, unchlorinated water, doubling in quantity approximately every four hours. By the time you can see it in your pool - you already have a problem! Algae cause green, slimy patches and stains to develop on the bottom and sides of the pool and green water. There are many strains of algae, but the most common are green, blue-green, reddish-brown and black. Others - known as osteocyte types - are particularly hard to remove and colour the pool water a shade of emerald green. These types are normally associated with salt-water and can occur in pools located near the ocean. Although algae are not harmful to humans, they will discolour the pool water.

AQUAGENIE:

An American-made skimmer/chlorine feeder system fitted to many pools in New Zealand, the Aquagenie operates on high pressure pool water returning through a horizontal slotted opening in the front of the poolside faceplate. This jet stream of water is directed downwards, keeping the pool floor in the vicinity clean. A small amount of returning water is siphoned off into a small reservoir, which houses a canister intended for Tri-Chloro-S-triazine-trione tablets (Tri-Super 90) a.k.a Stabilised Chlorine). This drips into the suction side of the filtration system, and assures complete sanitisation of the pool water and filter base. The rotating action of the pool surface, caused by the downwards jet stream, causes floating objects to quickly move into the skimmer - keeping the pool much cleaner than traditional skimming methods.

NOTE: As Tri-Chlor tabs have a low pH it is important to check levels periodically as a low pH may be detrimental to pool interior finishes. Standard 3" (72mm) Tri-Chlor tabs should not be substituted for Aquagenie tabs as they will not fit the canister, and are extremely hazardous to break apart.

AVAILABLE CHLORINE:

A measure of active chlorine present in your pool water to combat germs and algae. a.k.a Free Available Chlorine (FAC)

BACTERIA:

Microscopic organisms which are the cause of fermentation and putrefaction and also harbour and produce disease. They can be controlled by treatment with chlorine. Microbacterial entities ARE harmful to

humans, and can spread disease amongst swimmers. It is important that they are eliminated from the pool by regular pool sterilisation and frequent superchlorination (aka Shock Dosing).

BACKWASH

The process of reversing the pool water flow through the hi-rate sand filter in order to flush contaminants and detrius the has been collected during the normal filtration cycle away from the pool and into a handy sewer drain. The process of reversing the flow is generally accomplished by altering the position of a handle on the MULTI PORT VALVE on the top of the filtration tank.

BALANCED POOL WATER:

Pool water that is chemically balanced by buffering compounds that prevent rapid change of the pH; that is to say water that has a pH reading of between 7.2 and 7.8 (ideally 7.6) and contains the proper relationship between calcium hardness, pH and total alkalinity. (See TAYLOR WATERGRAM) This balance is the most important aspect of pool care, and an understanding of the importance will drastically reduce your pool chemical costs (See WATER BALANCE for more comprehensive discussion of this subject)

BREAKPOINT CHLORINATION

Breakpoint chlorination is the term used to describe the exact balance between CHLORINE DEMAND and CHLORINE RESIDUAL, whereby any LESS Residual Chlorine would result in growth activity of any algae present, and any MORE Chlorine present after the action of these features would result in a (small) positive Chlorine Residual.

Knowing your pool's "break point" allows you to calculate the quantity of chlorine needed to equal the nitrogen based debris in your pool and allow the calcuation of the extra amount required to maintain a remaining "safety net" presence of "Free Available Chlorine" or FAC in the pool.

CHLORINE: (in Powder, Liquid form)

In residential pool shops, chlorine is usually found as a granular compound aka Cal Hypo (70% - 90% yield) with added stabilisers, Calcium Hypochlorite (a.k.a Granular Chlorine) and is a powdery substance similar in appearance to granulated chalk. In granular form it will exude a toxic odour when uncapped that is harmful human soft tissue and your health - so do NOT INHALE this odour.

In another form, Chlorine can also be found as a lower yield Sodium Hypochlorite (a.k.a Liquid Chlorine) usually in 10 or 20 litre PVC Carboys.

When added to pool water, "chlorine" chemically alters to form hypochlorous acid (HOCL) - the chemical that will attack and destroy algae and bacteria in your pool by a process of oxidation, and hypochlorous Ion (OCL) the salt of hypochlorite which has little use inthe pool. Another form of chlorine is found in some common salts, (i.e. Sodium and Magnesium) which is freed by electrolysis into sodium/magnesium hypochlorite (then Hypochlorous Acid once again) (see SALT below)

CHLORINE DEMAND:

The actual amount of available chlorine that is consumed in the oxidisation of algae, bacteria and organic or nitrogenous matter in the pool water. If you raise the chlorine level in a swimming pool to 5 parts per million (5mg/Kg) and the pool has an equal quantity of nitrogenous debris (N - leaf matter, urine, skin flakes etc) then the next reading you take the next day may be ZERO residual chlorine, as 100 units Cl combatting 100 units N = 0 residual (See BREAKPOINT CHLORINATION)

CHLORINE SMELL:

There is a basic misconception that "too much chlorine" produces an odour referred to as "chlorine smell". In fact the opposite is true. (Chlorine is an odorless yellow/green gas which is toxic at concentrations of 2.5ppm or more) The "chlorine smell" is actually chloramines - the by-product of an incomplete chemical reaction between free available chlorine and nitrogenous matter (hair, skin flakes, urine etc.)

whereby there was insufficient FAC available to combat in entirety the presence of such matter.

CHLORAMINES

The incomplete reaction of chlorine and nitrogen based detrius produces a substance called chloramines - and they really stink! The remedy to this situation is to add more chlorine! If your children return from school smelling of "chlorine" - write the school Headmaster a note asking him to either look after their pool sanitation better, or alternatively excuse your child from swimming class - because a pool that smells this way is a health hazard! 100 units Cl combatting 200 units N = 200 'partially decayed nitrogeous matter' NOT 100 gone and 100 remaining! This rotting matter (putrefaction & fermentation) is what makes the smell! Chloramines are sightly antiseptic, but in the order of 25,000 times LESS effective than FAC.

CHLORINE RESIDUAL:

Active chlorine in the pool that is available for continued control of bacteria-algae after the initial chlorine demand has been met - usually in the range 1.0 to 2.0 ppm (parts per million) and is described as Free Available Chlorine or FAC

CLARIFIER

Usually liquid as a proprietary product (one brand: "Shimmer & Shine") or in powder form (Aluminum Sulphate - or FLOC) this product will consolidate a contaminated pool (see TURBIDITY) causing the contaminates to sink to the pool floor, where they may be vacuumed out to waste

COMBINED CHLORINE:

Most DPD Test kits react to the FAC immediately, then slowly (over several minutes) develop a misleading colour that is reading the COMBINED CHLORINE in your pool. Older orthotolidine (a.k.a OTO) kits read FAC then rapidly the sample is contaminated by the effects of combined chlorine. Combined chlorine can also include chloramines (see "CHLORINE SMELL") so may give you a misleading idea of how much chlorine is actually in your pool. Hint: always use DPD testers - never OTO!

CONTROL VALVE: (aka Multi-port Valve or MPV)

A variable port valve mounted on top of the filter unit to direct water flow from the pool through the filter or to the disposal point. Also referred to as MPV (multi-port valve) Do not operate the MPV while the filter is running! Damage due to "water hammer" (Water moving at high velocity down a pipe, then stopped by suddely closing a valve, will exhibit a destructive force that may split the pipe) may occur! MPV's usually have several options for the incoming water: FILTER (self explanatory) WASTE (the pool water bypasses the filter tank and is pumped to the nearest sewer drain) RECIRCULATE which simply returns the water to the pool (i.e. to run a fountain etc) and BACKWASH (which reverses the flow through the filter tank thus flushing the filter media of detrius and out down the WASTE connection to the nearest sewer drain)

DIATOMACEOUS EARTH:

a.k.a "Fullers Earth" this is a natural, very fine filtering agent (generally in the region of 10 microns which is twice as effective as 20 micron sand media) consisting of the shells of tiny coral-like sea creatures called "diatoms" who perished over 50 million years ago! Excavated in only a few places in the world: Vogelsburg (Germany) Clarksville (Colorado USA) being the best sources, it/they have been used as drinking water filtering media for many years. Not so common in NZ swimming pool applications, however, as the residue (which must be periodically flushed down the sewer) is environmentally unfriendly to waste treatment plants.

DPD

Chemical name N,N-diethyl-p-phenylenediamine (Hence the abbreviation) is the predominant chemical used in home water Test Kits to determine the presence and strength of chlorine in a water sample.

DRY ACID

Sodium Bisulphate (aka pH Decrease) should be used to reduce your pool alkalinity and SODA ASH (pH increase) for neutralizing pool acidity. If these products are not available in your area ask your local pool builder or pool shop for a suitable alternative recommendation.

If the water supply in the area is 'hard' the alkalinity level may be too high. A gradual increase in alkalinity also occurs due to the use of granular chlorine (calcium hypochlorite). If the pH of the water goes above 7.8 precipitation of insoluble components will occur and the water will become cloudy. It is not possible to reduce the pH of inherently hard water suddenly by the use of large quantities of pH decrease and repeated small dosages may be necessary.

The quantity of pH decrease used should not exceed 2kg to 20,000 L (one pound per 5000 gallons) of pool water at any one time. It is suggested that in hard water areas (where total alkalinity of supply exceeds 300ppm) half the above maximum quantity, or even a considerably smaller dosage should be tried until the behavior of the water is established by repeated testing.

It should be understood that high pH readings can be obtained from water with high total alkalinity (eg. 200ppm or more) or from water with low total alkalinity of, say, 20ppm. The best range for swimming pools is 120ppm (no more than 160ppm as the relationship between TA and CH starts being affected).

Identical pH readings may be obtained from pools with widely divergent total alkalinity levels and the pool with a high pH but low total alkalinity from the examples above would require one tenth of the quantity of pH decrease to obtain pH balance than the pool with a high total alkalinity level. Thus, the addition of a large quantity of pH decrease to a pool with a low total alkalinity level could turn the water acid and bring about the unpleasant results mentioned above.

Poolside test kits have included a means of testing total alkalinity but your local water supply authority should be able to tell you the average hardness of the water in your area. This information will serve as a useful guide of the procedure needed for the pool, and confirm the figures you obtain by poolside testing. Where the water is hard you may well find the pH decrease will bring the reading down to a satisfactory level within an hour or two but within 24 hours the original high reading will recur. This may continue for some days but in due course the readings will tend to stabilize at a lower level and only occasional small dosages will be necessary. The best time to correct pH is in the morning after taking pH and chlorine residual tests.

pH decrease should be dissolved in water in a plastic bucket and poured gradually into the pool skimmer while the pump is running. Strong solutions should be handled with reasonable care and spillage or splashing on clothes should be avoided. pH testing with the test kit is effected in the same manner as described for chlorine residual testing but using the pH reagent supplied with the kit. Remember to make the colour comparison against the pH colour spots within ten seconds of mixing, as a deeper color may develop due to the presence of chloramines.

FILTER SAND:

Almost all pool builders use a high-rate sand filter on their pools. (see GLASS FILTER MEDIA) This is a pressure fed vessel - usually made of a reinforced plastic material - that contains filter sand. Filter sand differs from ordinary sand because it is graded for consistency. As this graded sand will pass between 1mm thick wire grids of between 14 and 24 to the inch, it is called 14/24 sand.

The sand in your filter will typically last for between 5 and 6 years, but frequent backwashing will prolong the time between sand changes, as infrequent backwashing will allow the sand to become clogged with solids and debris. Backwash at least monthly "whether it need it or not" during summer months.

FLOC

An abbreviation for "flocculation" a scientific term for consolidation of matter in a pool, causing it to bind together creating more mass which - being less buoyant - sinks to the pool floor for easier removal by vacuuming to waste.

FOREIGN MATTER:

Materials such as dust, twigs, grass clippings, algae spores etc., carried into the pool by wind, rainfall and bathers - who may carry bacteria, which would increase consumption of chlorine.

GLASS FILTER MEDIA

Also referred to as "Electrostatic Glass Media" this is often made from recycled glass containers - generally in New Zealand from Beer Bottles as they seem to be plentiful. The process of manufacturing filter media involves grinding down the glass into granules of approximately 10 microns in diameter - during which process they acquire an electrostatic 'positive' charge. This electrical charge attracts dirt & debris thus performing a better job of removing the detrius from the pool water than regular 14/24 (mesh size grading scale) washed river sand.

HAIR AND LINT POT:

Unit with clamped or screw on lid (usually clear plastic), mounted onto the front of the pump as a preliminary screen for leaves and hair that got through the skimmer basket. (aka Hair & Lint Strainer)

HEAT PUMPS

A mechanical device similar in operation to a typical home refrigerator or air conditioner with one notable difference: The se cool the interior and exhaust the heat into the atmosphere, a Heat Pump heats the pool water by way of an internal heat exchanger, and exhausts cold air. The efficiency is rated by a COP rating: a Coefficient Of Performance whereas the input energy i.e. electricity, is rated against the output efficiency of the same product. The average COP of a good quality heat pump is around 4:1 where as 2.0 Kw of electrical energy consumed creates the equivalent of 8.0 Kw in heat - rated at 15 degrees celcius. Some cheaper quality Heat Pumps rate their units at a higher temperature starting point - i.e. 20 Degrees C, so be aware of this difference in performance.

HIGH RATE SAND FILTER

An improvement in swimming pool filtration from RAPID SAND FILTRATION, the High-Rate sand filter was developed as pump technology improved in the mid twentyth century. Water being drawn from the swimming pool is pumped into a barrel-like container of filter sand. As the flow passes through the filter sand, any contaminants larger in size than the sand grains would be trapped for future disposal. Technically, this was accomplished by passing the water through a slotted dispersal device in the lower part of the filter tank, so that it would rise to and be collected at the top part of the filter to be returned as 'filtered water' to the swimming pool. When the tank became clogged with detrius (a simple pressure gauge would indicate this) the filter would be BACKWASHED until the flow ran clear and clean, then the filtration cycles would be repeated.

HYDROCHLORIC ACID

Usually in 30% Concentration liquid form, used to treat black spot on older fiberglass, also to clean the Salt Cell where saline (Salt) Chlorinator is fitted to filtration system, and to lower the pH or TA in a pool - HAZARDOUS! See section on correct handling procedures for ACIDS

NEUTRALISER

Common name for Sodium Bicarbonate (bicarbonates of soda or "baking soda") this chemical has a pH of 8.0 and is used to raise the pH and hardness of pool water.

OZONE

Ozone is predominantly known as "Activated Oxygen" in the United States: By two production methods (passive UV Light and active Corona Discharge units) O₂ is split into two atoms of O₁, and as this is an un-natural state, the O₁'s combine with other O₂ to form a short-lived O₃ - what we refer to as Ozone. This is a natural phenomenon that quickly recombines as pure oxygen. A superior microbiological killer, Ozone is superior to Chlorine by a factor of 100:1 so is used extensively in bacteria prone areas such as public swimming pools, and private spa pools. It is becoming more popular in home swimming pools (especially the UV version) for the low cost of operation, lack of smell and lack of any residual in the swimming pool.

CAUTION: Ozone pools traditionally have **NO DISCERNABLE CHLORINE RESIDUAL** in the water, so if a sample is taken to a Pool Shop for analysis **BE SURE TO TELL THEM** your pool is **NOT** a chlorine pool, or the first thing they will tell you is "there's no chlorine in the pool" and try to sell you some.

pH:

pH stands for potential (aka 'positive') Hydrogen. It is described by a numeric scale to indicate acid or alkaline condition of water in a logarithmic range of 0 - 14. A pH of 7.0 is neutral, a rating over 7.0 is alkaline and under 7.0 is acid. A vinyl liner swimming pool is required to remain between the pH values 7.6 and 7.8 with 7.6 being "ideal".

Incorrect pH is responsible for poorly coloured or cloudy water, eye and skin irritation and corrosion of metal parts such as pumps and stainless steel ladders. Readings between 7.8 and 8.0 are tolerable but the chlorine effectiveness is far less. Readings above 8.0 give rise to minimal chlorine effectiveness. At readings of 8.4 chlorine effectiveness is negligible, scaling will occur and bathers will suffer irritation. The best pH for a home pool is close to 7.6, pH is adjusted by adding a suitable alkali to an acid pool and a suitable acid to a pool yielding an over high alkaline test.

PARTS PER MILLION: (aka ppm)

An abbreviation of "parts per million" which is how concentration of matter in water is usually referred to (See **TURBIDITY**). It is applied to pool water ratings as the quantity of any residual per million parts of water. In the Metric age, PPM is becoming redundant in favour of ml/Kl (millilitres per kilolitre)

POOL CAPACITY:

As it has been more common in recent times to calculate pool capacity in liters, the calculation is simple: multiply pool length by breadth by average depth for cubic meters of water. One cubic meter is 1,000 liters -or 1Kl (kilo litre). E.g. a 5m x 10m pool with average 1.5m would be ((5 x 10 = 50) x 1.5 = 75) or 75,000 liters.

POOL PUMP:

Electrically driven and usually self-priming, the pump is situated next to filter tank, serving to draw water from the swimming pool via a surface skimmer, then force it through the pool filter media (filter sand) then back to the pool through return nozzles. This is a closed circuit recirculation system.

POOL VACUUM SET:

Pools come equipped with a comprehensive pool vacuum cleaning set, consisting of a Vacuum Brush Head, Vacuum hose and extendable vacuum pole, a leaf scoop and leaf brush.

The pool skimmer comes with a dinner-plate sized **VACUUM PLATE** with a 40mm hole in the centre. This is inserted into the skimmer and the vacuum hose is then inserted - thus extending the suction to the far end of the hose (which is in turn plugged into the Vacuum Head Brush) The hose must be "flooded" before inserting into the Vac Plate, and the brush end must be submerged or the pool pump will deprime.

RAPID SAND FILTRATION

Not in general use for residential swimming pools in the 20th and 21st century, this very basic pool filter was developed in the nineteenth century as a first attempt to filter swimming pool water in public swimming pools. A large (2.0 m x 2.0 m) and deep (1.5 m) "Filter Tank" is constructed immediately adjacent to the pool wall, with a 200 mm piped connection between the two at the deepest point of the tank.

Water is drawn from the swimming pool at various levels and pumped into the tank, where gravity ensures that the flow back to the pool is continuous. Not very efficient, hence they are not in general use these days.

SALT CHLORINATION:

A good supply of "chlorine" may be obtained by the electrolysis of saline water (usually .02ppm salinity) into sodium hypochlorite. This occurs in a "salt cell" which is usually an electrode of stainless steel encased in a clear PVC tube so that the process may be observed. Many people think "salt" is better than "chlorine" as they imagine that salt is "more healthy" and has no odour. This is far from the truth, as the same chemical reaction takes place (i.e. the production of Hypochlorous Acid) whether the initial introduction is via salt, sodium chloride, or calcium hypochlorite. Voltage Leak from electrical devices in the pool water flow require an earthing device to be fitted to avoid any electrical shock issues. (It's low voltage, but could affect pacemakers)

The process of electrolysis also produces equal amounts of Sodium Hydroxide (aka Caustic Soda or commercially sold as Drain Cleaner) - which has a very high pH - so if you have a salt chlorinator fitted, you will need to do periodic pH checks (at least every month) to see how much ACID you need to put in the pool to bring the pH down to correct levels.

A recent addition to machines that use electrolysis of salts is the introduction of magnesium hypochlorite units, but the effects seem similar to saline units, both of which may introduce "voltage leak" into the swimming pool water. As the Magnesium units are a recent development, little is known at this time of any downsides to the process.

SKIMMER:

Aka "Surface Skimmer": Commonly a plastic "skimmer box" with large rectangle opening to the pool side, attached to, and protruding through, the outside pool wall, connected to the intake or suction line to the pool filter. By breaking the surface tension (WEIR), it removes surface debris from the pool water and retaining it by means of a floating weir. (It "skims" the pool surface - hence the name) The weir is hinged back into the skimmer body and stopped from floating more than vertical, thus trapping floating debris within the body of the skimmer for manual removal of the mesh skimmer basket. (See AQUAGENIE)

SKIMMER BASKET

Usually a 300 mm round X 250 mm deep strainer pot made from white PVC plastic, the purpose of which (when inserted into the body of the SKIMMER) is to trap leaves and other detritus from being sucked down the pool suction line and blocking the POOL PUMP from operating. The skimmer basket should be emptied periodically in normal use, and especially after high winds and summer rain which could cause leaves to fall into the swimming pool.

SODA ASH

See pH Increase, or sodium bicarbonate - also referred to as Neutraliser, or pH Buffer

STABILISER:

A chemical agent (a.k.a Cyanuric Acid) which when applied to outdoor pools in recommended amounts slows the dissipation rate of the chlorine residual by sunlight. Normally the cyanuric acid level should not exceed 50 ppm or 20 - 30 grams per cubic meter of water as it will render the FAC ineffective.

SUPERCHLORINATION:

Superchlorination is the term used for a massive dose (usually 10ppm) of liquid or calcium hypo to burn out any stubborn or resistant algae or bacteria. a.k.a "shock treatment" it should be performed at least fortnightly in summer months - or if bathing loads are high (or lots of kids have been swimming) at least weekly. Normal Cal Hypo or Liquid chlorine is sufficient for the purpose.

SUSPENDED MATTER

Particles that do not settle to the bottom. They give a cloudy or milky appearance to the water (see TURBIDITY).

TAYLOR WATERGRAM

A relationship chart that plots the appropriate levels of hardness and bicarbonates in the pool at given pH levels to create a "Balanced Pool" i.e. Total Alkalinity of 120 and Calcium Hardness of 200 can be cross referenced on the chart with a line drawn between these levels that exactly crosses the central pH value at the 7.6 mark.

TIME CLOCK:

Every pool is usually supplied with a time clock to control filtration cycles. It is essential that you time your pool to filter during daylight hours - if only to keep from annoying your neighbours. In summer months - especially if hot and windy - filter your pool a minimum of 10 to 12 hours daily between 8am to 8pm. In spring and autumn, this can be reduced to 6 to 8 hours, and during winter 2 to 4 hours should suffice. Do not turn the system off "for winter" as the cost of reviving and rebalancing the pool will outweigh the small amount of power usage during winter.

TURBIDITY:

A measure of cloudiness in water due to the presence of contaminates. At levels of 20,000 ppm or more, the pool water "looks cloudy". To remedy this situation, superchlorinate to 4ppm, filter pool 24/7 until clear. In extreme cases, add Clarifier or FLOC to consolidate matter, then vacuum pool with MPV on WASTE position. See SUSPENDED MATTER above.

TRI-CHLOR TABLETS:

The large 3" or 72mm tri-Chlor tabs are useful for pool chlorination when used in the correct feeder - such as the Rainbow "Water King" model or other in-line feeders. Do NOT however, break them up to use in the Skimmer (they may explode in your face while you try to break them) and NEVER under any circumstances place them either in the skimmer basket, or directly onto the pool floor, as they are highly acidic with a pH of around 4.0 and may cause damage to the pool surface.

If placed into the skimmer basket, when the pump stops at night the highly chlorinated and very low pH mixture in the skimmer body leaches out of the skimmer front and cascades down the pool wall causing potential damage to the pool interior surface.

WATER BALANCE

Probably the most essential subject you will need to understand is the relatively recently developed concept of WATER BALANCE. It was discovered in the mid 1970's that there is a CRUCIAL relationship between Total Alkalinity, pH, and Calcium Hardness. If your pool is "balanced" the pH will remain stable, and your pool will more economical to operate as you will obtain more effectiveness from your chlorine.

A correct Total Alkalinity will act as a buffer, which will prevent sudden changes in pH if for example there is a sudden downpour of acidic rainfall. Too much Calcium Hardness can cause cloudy water, encrustation of pipes and equipment, and the filter sand in your pool filter can lose effective filtration due to calcification. There are marginal differences between what is acceptable water balance for each type of swimming pool. For example a fiberglass pool is better off with a lower pH than the other pool types. Another confusing factor

is that "Pool Shops" using computerised water analysis equipment must be "generalised" to fit all pool types, so their recommendations may not be correct, and may in fact contradict, the advice given to you by your pool builder.

New Zealand water is mostly generated from rainfall, which "distills" the water thus reducing the dissolved miners etc. to practically nil by the time it reaches your household water supply. This is why we must add "body" to the water by increasing dissolved minerals. These are harmless.

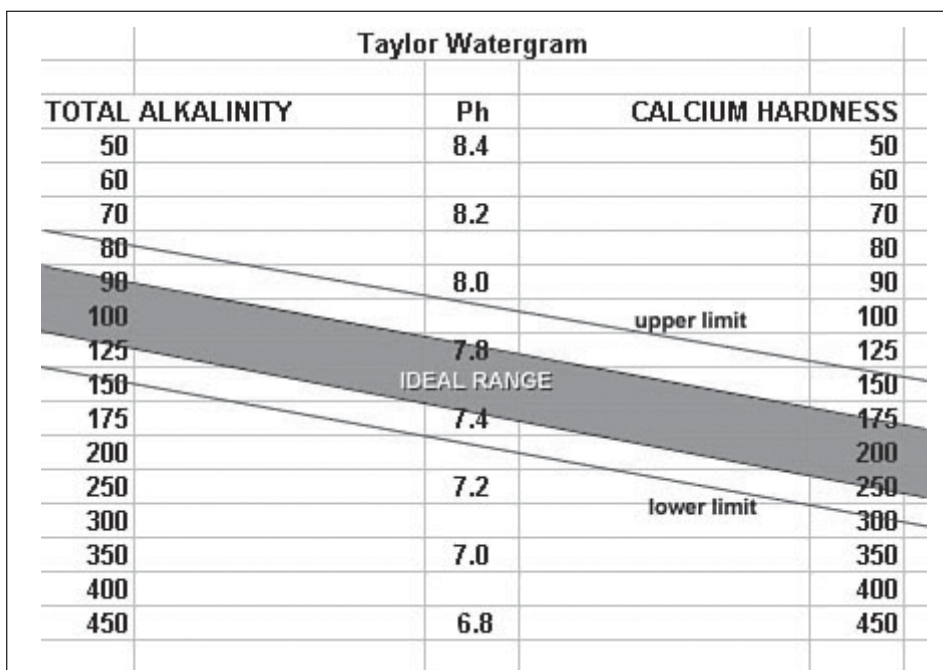
WEIR

Generally a rectangle and boyant WEIR FLAP, fixed by a hinge connection in the rectangle "throat" of a SKIMMER. As the pool water is drawn through the skimmer, the flow causes the weir to rotate in the direction of flow. Any floating debris - leaves etc. in the flow pass the weir and are thus drawn into the skimmer body, but restricted from being sucked further down into the filter suction line by a large, typically PVC plastic SKIMMER BASKET.

When the suction flow stops, either by the POOL TIMER or manually by the pool operator, the Weir Flap returns to its vertical position where it is stopped in that position by the skimmer body design. This prevents any trapped detrius from re-entering the swimming pool. The skimmer basket must be emptied periodically, especially if a storm has blown many leaves into the pool.

ZELBRITE

An alternative to sand filtration media, not dissimilar to GLASS FILTER MEDIA in appearance, produced in Australia where it is more common (and popular) than in New Zealand.



There is a relationship between levels the of Calcium Hardness and the Total Alkalinity of your pool called the "Water Balance". The pool is termed "Balanced" if the above values shown are true. The Watergram above shows TA 100, pH 7.6 and CH 200 as being ideal. The two elements CH & TA may vary, so long as the crossover point on the Taylor Watergram is within the specified pH range - the preferred pH value of home pools = 7.6 This "Balanced" pool will maintain the pH due to the "buffering" effects of the two compounds which are added to the pool Calcium Hypochloride - which are related to "Baking Soda" and "Chalk". Maintaining the pH at the recommended level is the most important factor in keeping the pool clean and sterile, so always keep an eye on the pH of your swimming pool.

