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## **“THE ULTIMATE POOL HANDOVER”**

A complete set of notes provided for your reference.

Note: Recommendations based on a 50,000 litre pool.

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## START-UP AND INITIAL OPERATION OF REACTIVE-FINISH

### - SWIMMING POOLS -

#### INTRODUCTION:

A reactive-finish swimming pool is a concrete pool with an interior surface of marble sheen, pebble finish or tile. In fact, any finish which has a base of calcium.

#### Marble Sheen -

Is 100% reactive, with calcium being spread evenly throughout the mixture.

#### Pebble-finish -

Is 30-50% reactive, with calcium occurring in the matrix, in which the pebble is embedded. It is not completely exposed.

#### Fully-tiled -

Is 10-20% reactive, with calcium occurring evenly throughout the grout.

These finishes have a calcium donating surface. This is caused by excess calcium within the matrix, which is unnecessary for successful curing of the finish. When it comes in contact with water, the excess calcium enters the water and increases the calcium hardness. This reaction is alkaline, so will also cause the pH to increase.

#### WATER BALANCE:

Water is considered to be correctly balanced when it is neither corrosive, nor scale-forming to the pool surface or equipment. The factors affecting water balance are:

- i pH
- ii Total Alkalinity
- iii Calcium Hardness
- iv Temperature

Temperature becomes important in heated water. Heaters with internal temperatures of 60°C, and operating temperatures of 28-40°C, will dictate the parameters of the other factors, to a further extent.

Unheated water is most affected by the first three factors. In order to be balanced, the water must have the right levels of:

- I pH
- ii Total Alkalinity and
- iii Calcium Hardness.

If levels are too low, the water will be "hungry" or corrosive and will cause etching of the pool surface. If levels are too high, the water will be too "full" and will cause scaling.

#### Pool Surface and Water Balance -

As the calcium enters the water, it brings with it alkaline (hydroxide/carbonate) ions which tend to cause pH to increase. There may also be an alkalinity increase. The calcium becomes dissolved in the water and increases the hardness.

All of these effects increase the water balance and can, if left untreated, make the water so "full" it will "spit out" the calcium, depositing insoluble calcium carbonate upon the pool surface and equipment. This "scaling" is unsightly and can be very sharp, causing injury to the pool users.

Usually the only remedy to remove the scale, is to empty the pool, acid wash the surface, refill and balance. If this is found to be the builder's responsibility, it is an expensive exercise. If the customer is blamed and has to pay for the disaster, we have a very unhappy customer on our hands -one who is likely to tell 11-15 of his/her friends, what a Mongrel, you are.

If the water balance is too low, the hungry water will accelerate the movement of calcium into the water. Not only will excess calcium be removed from the surface, but the calcium inherently required for the successful curing of the render, will also enter the water. Permanent damage can be done at this stage.

The problem can be exaggerated by additions of large amounts of acid, necessary to lower the pH to the recommended levels. Increased calcium movement will also accelerate pH increase. The addition of acid will lower the pH and Total Alkalinity, which lowers water balance. Water becomes more corrosive and encourages further calcium movement. Thus, a viscous cycle is formed.

#### RECOMMENDED INITIAL LEVELS:

Within a few days of filling a reactive-finish pool, the calcium level will have risen to 30-80ppm, depending on the pool surface area, water volume, pool finish, individual render and water temperature. At colder temperatures, calcium is more soluble (i.e. dissolves more readily in water).

#### pH -

pH of 7.6-7.8 should be achieved and maintained from the commencement of the pool's life. It will have a tendency to rise in the first 12 weeks. A pH of less than 7.5 and above 8.0 should be avoided.

#### Total Alkalinity -

Total Alkalinity of 120-150ppm should be the initial level achieved. This will tend to increase towards 200ppm. Alkalinity levels of less than 100ppm or above 200ppm, require attention.

SALT-CHLORINATORS:

Salt-chlorinators are most efficient and effective, with minimum fuss or maintenance, at the following levels:

pH	7.6-7.8
Total Alkalinity	150 - 200 ppm
Calcium Hardness	60 - 90 ppm

To compensate for the lower calcium hardness, a higher alkalinity is required. The higher alkalinity will tend to keep pH above 7.5 rather than below. If pH is kept below 7.6, more frequent acid additions are required. This will reduce the alkalinity, so Dry Alkali will be required. Another viscous cycle is formed.

The need for weekly or fortnightly acid additions, when a salt-chlorinator is in operation, is due to the production of small quantities of caustic soda. This occurs at the cell, when salt is converted to free chlorine. This substance is alkaline so tends to push pH up and small amounts of acid are required.

The overall effect of the salt-chlorinator operation is to increase pH and so increases water balance. This is no problem once the pool surface has settled, but for the first few months, makes it more difficult to control the pH.

The increasing water balance causes calcium to deposit more readily on the cell, so more frequent cleaning is required.

THE RECOMMENDED START-UP AND INITIAL EIGHT-WEEK MAINTENANCE PROGRAMME:

1. Filling -

It is important to fill the pool quickly, so use as many hoses as possible.

2. Chemical Additions -

- a) When the pool is half-filled, add half of a 12.5Kg bag of Poolkare Tammit.
  - i Add by mixing 1Kg Tammit into a 10L. bucket of water;
  - ii Pour the slurry evenly around the edges of the pool. Repeat six times until 6Kg of Tammit is added. AVOID CONTACT WITH EYES, SKIN AND CLOTHING - READ SAFETY DIRECTIONS FIRST.
- b) Allow the pool to fill to the top of the tile level. Add the balance of Tammit as in a) above.
- c) Mix, by running the filter on recirculate, for three - four hours, then switch off. If the filter is not operational, use a broom to stir the water.
- d) Allow to stand overnight. When the water is clear, vacuum any residue to waste immediately to avoid staining. Add a handful of Rock Alum to the skimmer box.
- e) Filter for eight hours. If the water is not clear, check chlorine levels. Extremely dirty water may require extra chlorine. Chlorine level should be maintained above 1ppm.

f) Check pH and Total Alkalinity levels. Adjust if necessary to recommended levels.

Acid Additions\*- DO NOT ADD ACID UNTIL FREE CHLORINE LEVEL DROPS BELOW 2.0ppm. Add 2Kg of dry acid (sodium bisulphate) into a 10L. bucket of water. Mix with a wooden or plastic spoon. AVOID SPLASHING. Add the acid to the pool by pouring the solution over the return outlets with the filter running. NEVER POUR ACID SOLUTIONS INTO THE SKIMMER BOX. Do not add more than 2Kg of dry acid in any 24 hour period. Add acid until pH of 7.8 is reached. At this point, acid additions of 500g at a time are sufficient for pH reductions.

If Total Alkalinity should drop to below 100ppm due to frequent acid addition, add 5Kg of Dry Alkali (Sodium Bicarbonate) to the pool. Mix in a 10L. bucket of water and pour solution over the return outlet with the filter running. This will increase the alkalinity by 50ppm.

### 3. Chlorination -

On the day after filling, add three TICA (Trichlor, stabilized chlorine) tablets to a trichlor floating dispenser. Once per week add a further tablet to any others remaining in the dispenser for the next eight weeks. DO NOT PUT TICA TABLETS IN THE SKIMMER BOX. TICA is very acidic, so reduces acid consumption. It also releases acid slowly, which is less harsh on the pool surface. TICA contains stabilizer which is released into the water. Stabilizer prevents chlorine loss, caused by the sun's Ultra Violet rays. This UV light causes chlorine breakdown, resulting in difficulties maintaining free chlorine levels. Daily free chlorine levels should be maintained at 1 - 3ppm, which provides adequate bacteria and virus control.

### 4. Superchlorination -

Once per week, add 500g of stabilized chlorine granules. Add, by mixing in a 10Lt. bucket of water. AVOID SPLASHING. Pour the solution over the return outlet with the filter running.

Superchlorination will raise the free chlorine level to 5-7ppm, which is essential for algae control. Stabilized chlorine is slightly acidic in pH, so will not aid in increasing water balance. It will also add stabilizer to the pool so after eight weeks, stabilizer levels will be within those recommended.

### ON-GOING MAINTENANCE;

On the ninth week of the pool's life, the ten TICA tablets will be almost all dissolved and the 4Kg of stabilized chlorine will be finished. The pool will be ready for salt addition.

Water should be tested by an Accredited SPASA Pool Shop. The following levels should be achieved and maintained:

\* 1Kg Dry Acid = 1L. Liquid Acid

500g Dry Acid = 500mls Liquid Acid

Test	Recommended Levels	Frequency Of Testing		Treatments Recommended
		Summer	Winter	
pH	7.6 - 7.8	Daily	Weekly	Add 500g. acid as described to lower pH. If more than 1Kg per week is required, consult your Pool Shop.
Free Chlorine	1.0 - 3_0ppm	Daily	Weekly	Run chlorinator as required. Superchlorinate weekly in summer
Total Alkalinity	150 - 200ppm	Weekly	Monthly	Add Dry Alkali to increase alkalinity, not Soda Ash.
Calcium Hardness	60 - 90ppm	3-Monthly	3-Monthly	Take sample to Pool Shop.
Salt	Refer to Chlorinator Manufacturer	3-Monthly	3-Monthly	Take Sample to Pool Shop.
Combined Chlorine	Less than 0.5ppm	Monthly	3-Monthly	Shock dose with Liquid Chlorine.
Cyanuric Acid	30 - 80ppm	6-Monthly	6-Monthly	Take sample to Pool Shop
Total Dissolved Solids	300 - 700ppm (Plus Salt)	6-Monthly	6-Monthly	Take sample to Pool Shop

Summer -

During summer, weekly superchlorination with 2L. liquid pool chlorine is recommended. This kills algae and forms salt, so is completely compatible With your chlorinator.

Winter -

During winter, monthly additions of 400mls. of Poolkare Zed Zed are recommended to prevent algae growth. This is a non-foaming, long-lasting algaecide, compatible with salt-chlorinators. Zed Zed is guaranteed when used correctly, to prevent green and black-spot algae. Superchlorination is not necessary in winter.

Shock Treatment -

If the pool is neglected, ensure pH is less than 7.8, add 10L. liquid chlorine and run filter and chlorinator for 12 hours. Vacuum dead algae to waste if possible. Backwash filter. Add a handful of Rock Alum to skimmer box.

Rock Alum -

A handful of Rock Alum into the skimmer box, improves filtration in Sand Filters. (Do not use with Cartridge Filters) Due to its acidity, it will help to keep pH below 7.8. Just add, after each filter backwash.

Top-Up Water -

Fill the pool by placing the hose in the skimmer and turning the filter on. Always run chlorinator after adding fresh water.

WHY TAMMIT?

Tammit - gives you an initial pH of 7.6 - 8.2, which is easy to control.

Tammit - gives you an initial total alkalinity of 120 - 180ppm which is within the recommended range.

Tammit - Allows the calcium hardness to come into equilibrium with pool water, without harming the pool surface. Calcium levels will level off within a few weeks to those recommended.

Tammit - provides you with perfectly balanced water that is easy to regulate.

Tammit - coagulates suspended solids and flocculates them out of suspension, so they can be vacuumed to waste.

Tammit - provides an initial shock-chlorination dose, to kill algae and bacteria and oxidize contaminants. Water is cleaned up from the beginning.

Tammit - gives an initial stabilizer level of 7ppm which contributes to the required level of 30 - 80ppm.

Tammit - contains a corrosion-inhibitor which helps protect pool equipment from damage.

Tammit - is the all-in-one Pool Starter with all the added bonuses and without the unnecessary headaches.

WHY TICA?

TICA Tablets - help to keep the pH within the recommended range gradually, without extra acid additions, while the pool surface is still reactive.

TICA Tablets - maintain the daily chlorine levels required with the minimum of fuss - and without stressing the chlorinator in those first few important weeks.

TICA Tablets - add about 20ppm stabilizer to the pool to help prevent chlorine loss from UV light breakdown.

STABILIZER:

Stabilized chlorine for superchlorination, prevents green or cloudy pools from occurring.

Over eight weeks, this will contribute 40ppm to the stabilizer level, so a total of 40 - 60ppm will be achieved. This is perfect for chlorine protection.

Stabilizer can be added separately but is very insoluble, taking several days to dissolve. Undissolved particles do not damage pool surface.

Stabilized chlorine, with its slightly acidic pH, helps to counteract increasing water balance, so helping to ensure protection of pool surface, equipment and bathers.

Overall, the Tammit/TICA Handover System really does allow you to provide:

"THE ULTIMATE POOL HANDOVER",



## FOR THE POOL OWNER

### 10 BENEFITS OF CHOOSING THE POOLKARE "TAMMIT/TICA" HANDOVER SYSTEM

1. Ensure you protect the life and beauty of your delightful new investment.
2. Feel secure, knowing you have done the right thing for long-term enjoyment of your new Pool.
3. Reduce the cost of chemicals, by letting the chemicals you do need, do all of the work.
4. Reduce the time required for testing and chemical additions, by using a consumer/pool - compatible system, developed to work harmoniously for your convenience.
5. Protect your salt-chlorinator in those first few months when damage may occur. Ensure long life of your chlorinator and it will be your best friend.

NOTE: It's assuring to know that the manufacturers of your Salt Chlorinator, care enough about their customers, to offer you everything they can to ensure you are truly satisfied with your purchase for many years to come.

6. It is comforting to know you have chosen a Pool Builder who cares enough to offer you the most beneficial, professional Handover available.
7. Your Handover provides you with simple, complete, easy-to-understand instructions, on how to care and maintain your pool. Maximizes enjoyment and minimized effort and is always available for your reference and convenience.
8. The System allows you to "get-to-know" your pool and how to make it work for you. Frustrating mistakes aren't necessary - you'll have it right, right from the start.
9. No Pool Builder hassles for you! The only time you'll want to ring him up, is to Thank him.
10. This System has been formulated by a team of skilled, highly trained water chemists, dedicated to achieving excellence. Your Handover is backed by these same people, to offer your further assurance of your very sensible choice.