



# POOL GUIDE

THE ULTIMATE POOL & SPA MANUAL



# introduction **safewater**

Without question water is our most valuable natural resource. It covers most of the earth's surface, and supports the most diverse ecology known to man. It governs every facet of our daily life, and like air, is essential to life itself.

Safe water is rarely available in the natural environment because of pollution, and in most countries of the world, has to be chemically treated and filtered to make it safe for human consumption. We take its availability for granted, and never question how it arrives at our homes for the multitude of uses we put it to.

Water must be managed and protected to achieve the greatest possible benefit from it, and it must be considered a finite resource. It is utilised by many industries, and provides pleasure, recreation and lifestyle for everyone. It is undoubtedly, our most highly recycled natural resource.

Wherever and however water is used, it will need to be valued more highly, with better management practices and conservation so future generations will be able to enjoy its benefits as much as we do today. Clean healthy water and air free of pollution, are probably the greatest legacies one generation can leave to another.

I'm sure we would all agree.

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## **ABOUT THIS GUIDE**

The Pool Guide is an easy to read but comprehensive document, covering many aspects of pool and spa care.

It is designed to give pool owners an appreciation of correct water balance, sanitation and general maintenance procedures, so the health and safety of families is protected.

From the moment water enters a swimming pool, it is subject to a multitude of influences - bathers, dust, leaves, air borne contamination and sunlight, all of which change the water chemistry, requiring its regular adjustment.

By following our simple pool care rules, and adopting routine maintenance procedures for pump, filter, chlorinator and ancillary equipment, then the pleasure and benefit of pool ownership can be realised.

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# chapter 1

# watercare

Water Balance is a term used to explain the compatible relationship between pH, Total Alkalinity and Calcium Hardness. The parameters recommended offer the most effective means of achieving quality water using a particular sanitation chemical or process.

## **TOTAL ALKALINITY (pH buffer)**

Total Alkalinity is measured in parts per million of carbonates and bicarbonate salts within pool water, regulated to provide a stabilising influence on pH.

Low alkalinity causes pH to bounce or alter dramatically with the addition of small amounts of adjustment chemicals, whereas high alkalinity increases acid demand, contributing to the scaling properties of pool water, if pH is correspondingly high.

Total alkalinity control is essential in building an effective treatment programme, with most pools requiring an alkalinity of 80 to 120ppm. This may be varied up to 150ppm to suit particular sanitation processes or surface types.

### **Adjustments to Alkalinity**

Alkalinity is raised by adding alkalinity increaser at the rate of 900gms per 50,000 litres of pool water, for every 10ppm rise required.

Alkalinity is lowered by adding 1.2 kg of dry acid or 1 litre of hydrochloric acid per 50,000 litres of pool water for every 10ppm reduction required. Dilution with low alkalinity tap water will achieve a similar result. Pre dissolve acid in a bucket of water before distributing evenly over pool surface. Filter well after addition.

## **pH LEVELS**

**(The measure of acidity or alkalinity)**

pH measures the acidity or alkalinity of pool water and is influenced by temperature, chemical addition, rain, bather contamination, or by almost anything the water comes into contact with. A pH test determines when chemical adjustment is necessary.

Maintaining pH control is very important in the water treatment process, allowing chlorine to achieve its maximum efficiency and sanitation effect. Whilst high pH reduces chlorine efficiency and contributes to the scaling property of pool water, low pH causes corrosion of pool surfaces and equipment. Low pH will also irritate eyes and skin.

### **Adjustments to pH**

**To raise pH:** Add a maximum of 1 kg of pH increaser per 50,000 litres of pool water at any one time. Distribute evenly over pool surface and filter well after addition.

**To Lower pH:** Add a maximum of 1 kg of dry acid, or 1 litre of liquid acid per 50,000 litres of pool water at any one time. Pre dissolve acid in a bucket of water before distributing evenly over pool surface. Filter well after addition.

## **CALCIUM HARDNESS**

Hardness is measured as parts per million of calcium carbonate present in pool water. Calcium is an essential mineral, which should be kept within recommended parameters to prevent water from becoming corrosive, when low, or scale forming, when high.

Water has a natural ability to re-balance

itself when calcium is low by absorbing minerals from the pool surface. This can damage plaster surfaces, and cause pebbles to come free from an aggregate surface.

200 to 225ppm of calcium is recommended for pebble, tiled, concrete, painted or marble pools, and 175 to 225ppm for vinyl or fibreglass.

### **Adjusting the calcium hardness**

**To raise calcium hardness:** Add Hardness Increaser at the rate of 500gms per 50,000 litres of pool water for every 10ppm rise required. Add by broadcasting evenly over pool surface and circulate well.

**To lower calcium hardness:** Dilute with tap water that has a lower hardness value or use a suitable sequestering agent for effective chemical reduction.

## **SANITATION**

Sanitation refers to the process or means used to kill bacteria and organisms in water, rendering it safe for human consumption or use. It can be achieved by adding chlorine in its many forms or by producing chlorine in situ, using salt and electrolysis. Ozone gas and Hydrogen

Peroxide are other effective sanitisers of water, however they are generally not considered to be beneficial alternatives to chlorine, because of cost and availability. Chlorination is by far the most effective means of sanitising water in use today.

Depending on overall water condition, a level between 1.5 and 3.0ppm of free chlorine will be necessary to provide water that is safe for recreational use.

## **STABILISER**

Chlorine, whilst the most widely used sanitiser, is very susceptible to loss when exposed to ultra violet sunlight. Adding stabiliser (cyanuric acid) to pool water provides protection for the chlorine from UV degradation, whilst allowing the chlorine to remain active and controllable in the pool during daylight hours. Levels between 35 and 50ppm are recommended, depending on the particular type of chlorine being used.

## **SANITISER TYPES**

### **SODIUM HYPOCHLORITE**

10%-13% Liquid Chlorine-Strong bleach, short shelf life - Has high pH value.

### **CALCIUM HYPOCHLORITE**

65 - 70% Granular Chlorine-Precipitates low % of insoluble calcium - Has high pH.

### **LITHIUM HYPOCHLORITE**

35% Granular Chlorine-Fully soluble Suitable for spa pool sanitation.

### **SODIUM DICHLOR**

56 - 60% Stabilised Chlorine-Fully soluble Has low pH value.

### **SODIUM TRICHLOR**

90% Available Chlorine-Hard pressed tablet Slow dissolving Fully soluble Has very low pH value - Suitable for floats, feeders, and skimmer application.

### **SODIUM CHLORIDE**

Granular Pool Salt-Fully soluble Used in a dilute solution between 3 and .9% - Produces Sodium Hypochlorite (liquid chlorine) through electrolysis.

Note: Higher levels of Chlorine should be maintained to correspond with higher levels of stabiliser present in the pool water.

### **Adjusting the stabiliser**

**To raise stabiliser level:** Add 500gms of stabiliser per 50,000 litres of pool water for every 10ppm rise required.

**To lower stabiliser level:** Depending on the concentration of stabiliser present in the pool, empty pool proportionately, replacing with fresh water to dilute concentration to the levels recommended.

**Important: Follow label instructions for adding stabiliser, and do not broadcast directly onto pool services.**

## **FILTRATION**

Clean healthy water is achieved by a combination of factors working in harmony, namely, correct water balance, sanitation, and effective filtration.

All water contains microscopic algae spores and organisms, which, if not treated and removed, can grow rapidly in the presence of sunlight. These solids along with all other foreign materials such as dust, leaves etc, are removed by passing the water repeatedly through a filter medium.

The three accepted filter processes used commonly on swimming pools are, sand, cartridge and diatomaceous earth (DE).

These processes will remove solids effectively, and achieve high standards of polish and clarity; however, they also require suitable sanitation and oxidation of the water for maximum results.

Well-filtered and treated water will be obvious by its clarity and sparkle. Turbidity or cloudiness would suggest a lack of filtration or sanitation effect, or incorrect water balance.

The minimum filter cycle recommended will require 2 passes of the total volume of pool water through the filter medium per day. Eight to twelve hours of filtering will generally achieve this.

Salt pools may require additional filtration time to meet chlorine demands within the pool.

All filters require regular cleaning and maintenance to achieve optimum results.

## **TESTING POOL WATER**

Visually clear and clean water would normally indicate water quality, however, it is only by testing the water balance, residual sanitiser and other support chemicals, that the assumption of quality can be confirmed.

Simple kits are available to carry out basic water testing, particularly for chlorine and pH.

Free chlorine must be available in sufficient quantity at all times to take care of the changing demands placed upon it, and pH must be maintained within the 7.2 and 7.6 range to ensure chlorine effectiveness. Regular pH control also contributes to water clarity and comfort of bathers.

Pool owners should carry out these two simple tests, at least once per week, and adjust levels accordingly.

Thereafter, monthly testing by a pool service professional of alkalinity, hardness, stabiliser, salt, total dissolved solids, or any other factors relevant to the water treatment programme is recommended.

## chapter 2

# adding chemicals

**WARNING:** Swimming pool chemicals can be reactive when mixed or contaminated. Handle carefully and use a separate clean measuring device for each chemical.

### LOWERING pH (ADD ACID)

- Half fill a bucket with water and measure acid carefully avoiding fumes and spillage.
- Add acid directly to water and mix well.
- Broadcast acid solution evenly over pool surface and filter for at least two hours before swimming.
- Maintain pH between 7.2 - 7.6 for bather comfort and improved effectiveness of other chemicals.
- Avoid adding other adjustment chemicals until acid is fully dispersed.

### LOWERING ALKALINITY (ADD ACID)

- Add 1 litre of acid per 55,000 litres of pool water, per day, for each 10ppm reduction required.
- Filter well and test pH before each addition.
- If pH is lower than 7.2 - then delay adding more acid until pH stabilises

### INCREASING TOTAL ALKALINITY (ADD pH BUFFER)

- Broadcast Alkalinity Increaser evenly over pool surface and filter for at least two hours.
- Maintain alkalinity between 80ppm and 125ppm for concrete, plaster and tiled surfaces.
- Maintain alkalinity between 125ppm and 150ppm. for vinyl, fibreglass and painted surfaces.

### LOWERING CALCIUM HARDNESS

- Dilute pool water with tap water containing lower calcium hardness or use a suitable sequestering agent for efficient chemical reduction.

### INCREASING CALCIUM HARDNESS

#### (ADD CAL PLUS)

- Add 500gms of Hardness Increaser per 50,000 litres of pool water for every 10ppm rise required. Broadcast 1/3 of the required dose evenly over pool surface and filter well. Add remaining 1/3 doses at least 8 hours apart.
- Recommended hardness for fresh water pools - 200 to 300ppm.
- Recommended hardness for salt pools - 170 to 200ppm.

### ADDING STABILISER (CYANURIC ACID)

- Clean filter and clear all debris from pump and skimmer baskets.
- Pre dissolve powder in a bucket of water and add slurry slowly to skimmer box with filter running. Filter for at least eight hours continuously to dissolve stabiliser into pool.
- Do not clean or backwash filter for at least 4 days after addition.
- Do not broadcast stabiliser granules directly into pool as etching could occur.
- **WARNING:** Stabiliser should not be used in indoor pools or spas.

### ADDING SALT

- Disconnect automatic cleaner.
- Turn chlorinator off or down and commence filtering
- Pour salt directly into the pool and brush until salt is fully dissolved.
- Filter for at least four hours before reconnecting cleaner and restarting chlorinator.
- NOTE: Add no more than three bags of salt per 50,000 litres of pool water at any one time.

## chapter 3

# threestepsystem

There are three objectives that need to be achieved in a daily or weekly chemical treatment procedure, once correct water balance has been established. They will address the primary goal of ensuring a healthy environment for family recreation. These steps should form an integral part of an established maintenance routine.

### STEP 1

**SANITATION:** The objective of sanitation is to achieve a consistent and effective bacteria kill, irrespective of the sanitation process being applied. Regular testing and maintenance of 1.5 to 3.0ppm of chlorine or the equivalent of an alternative sanitiser will be essential. Note: Changing weather conditions, bathing load or heavy contamination will increase chlorine demand, necessitating a higher chlorine input.

### STEP 2

**OXIDATION:** Regular shock dosing or oxidation of organic contamination and swimmer waste is recommended to prevent pool water problems. It should supplement an established sanitation programme to ensure the sanitiser is not diverted from its important role of keeping water safe and healthy on a daily basis..

Oxidisers and shock treatments are pre-packed for convenience, are fully soluble, and designed for use regularly or weekly.

### STEP 3

**ALGAE TREATMENT:** A single glass of water contains millions of algae spores, invisible to the naked eye, but able to proliferate at an extraordinary rate when exposed to sunlight and a suitable food source, being able to mutate into common green, black and mustard strains seen in pools today.

Heavy chlorine dosage might eliminate common algae forms by bleaching and burning them into submission, but generally it will require a specially formulated algaecide to achieve long lasting eradication and control of more resistant strains.

Algaecides penetrate the algae cell structure, starving it of nutrients, accomplishing a kill that is long lasting and controllable.

Different algaecides are available to suit individual algae strains, and should be used as recommended. Chlorine and algaecides used jointly will achieve best treatment results.

# chapter 4

# maintenance

## **FILTER**

The primary role of a filter is to remove solids and greases from pool water. Normal cleaning processes such as backwashing or hosing are designed to remove those contaminants, however chemical cleaning of the filter sand bed, cartridge or DE septum, is recommended at least twice per year to ensure optimum filter performance.

Greases and oils attach to the individual grains of sand or woven fabric, are difficult to backwash or hose away and require a strong alkaline compound to dissolve and remove them. Special cleaning compounds suitable for all types of filters are available and recommended for this maintenance procedure.

## **SKIMMER BOX**

The skimmer box is designed to remove floating debris from the pool and is the main vacuum point from which water is drawn by the pool pump. Water level should be maintained at approximately  $\frac{3}{4}$  height of the skimmer entrance with the weir door providing an efficient skimming action

## **PUMP**

The pool pump is the heart of a swimming pool, drawing water through the skimmer basket to remove leaves and large debris, before collecting smaller debris within the pump basket. It does this continuously, circulating filtered

water throughout the pool ensuring efficient chemical distribution and cleaner operation.

Pump and skimmer baskets should be cleaned regularly to ensure full water flow at all times. Blocked baskets split easily under strong vacuum pressure, causing leaves to clog within suction lines or pump impellers, necessitating onsite service.

Lubricate pump lid "o" ring with silicone grease as part of regular routine maintenance. Do not use vaseline

Leaking of water below the pump body will indicate a faulty mechanical seal or body gasket, which could cause pump or motor damage. A high pitch whine within the motor would generally indicate bearing failure - both of these complaints should be repaired immediately by a pool service professional

## **BACKWASH VALVE**

A filter backwash valve contains a multi port gasket, which directs water flow to perform the various filter functions. It has an expected life of several years, but can perish or loosen with age, causing leakage through the waste line, or return of unfiltered water back to the pool. Lack of lubrication of the valve shaft "o" ring, situated within the top seal plate of the valve, can cause similar problems.

Valve maintenance should be carried out by a pool service professional.



## chapter 5

# cleaning filters

## CLEANING CARTRIDGE FILTERS

Cleaning of the cartridge will be necessary once the pressure gauge reaches 50 kpa above normal start up pressure, or a maximum of 110 kpa. .

### CLEANING PROCEDURE

1. Switch pump off and open air-release valve on filter lid. Allow water to drain from tank.
2. Loosen clamping band and remove filter lid to expose cartridges.
3. Lift cartridges from filter tank and hose clean with a strong jet of water set to a spray width of 25 to 30mm.
4. When clean, reinstall cartridges into tank.
5. Make sure gasket or "o" ring is clean before fitting and clamping filter lid in place.
6. Switch pump on and allow air to be expelled from air release valve, until water flows.
7. Close air release valve. Filter is now ready for normal operation

### SPAS

Hot water conditions and heavy bathing loads will necessitate more frequent cleaning of filter cartridges.

NOTE: Cartridges should be chemically cleaned every 6 months to remove oils, grease and scale from fabric. This will extend cartridge life. Filter cleaning compounds are available for this procedure.

**WARNING: Cartridge filters are pressure vessels, exercise care in fitting lid and clamp securely.**

## ESSENTIAL ACCESSORIES

### GENERAL ACCESSORIES

Pool maintenance is an unavoidable task made easier by ensuring cleaning accessories are in good order at all times.

The products listed are a minimum requirement for effective service.

- Water test bottle (500 ML)
- DPD Test Kit
- 18" Pool Broom
- Leaf Rake
- 8ft to 16ft Telescopic Handle
- Vacuum hose (length of pool + 2 metres)
- Vacuum Head or Automatic cleaner
- Silicone Grease
- Pump lid spanner

### SALT POOL ACCESSORIES

- Cell Cleaning Canister
- Saf-T-Cell
- Probes
- Fine Hose Nozzle

# CHEMICALLY CLEANING SAND, CARTRIDGE & DE FILTERS

Powerful alkaline cleaning compounds are available for dissolving and removing grease, oils, suntan cream and body fats from a sand filter, thereby extending media life and efficiency.

These products are also excellent for soaking filter cartridges and Diatomaceous Earth septums.

For safety sake, wear eye protection & gloves when handling these products, and avoid breathing its dust. Keep out of reach of children.

**DO NOT MIX WITH CHLORINE OR OTHER CHEMICALS.**

## DIRECTIONS FOR SAND FILTERS

Note: If filter is installed below water level, ensure pump inlet valve is open for first backwash - closed for treatment and reopened for second backwash before returning to normal filter operation.

### PROCEDURE

- Establish correct sand capacity of filter. (Total kilos) then measure 2 grams of filter cleaner for each kilo of sand contained.
- Mix @ the rate of 150 grams of filter cleaner per 10 litre of water. Eg: 300 Grams into 20 litres of water.

### DIRECTIONS

1. Backwash filter for two minutes, switch pump off, and move valve handle to Rinse position. \*Close pump inlet valve if fitted.
2. Remove pump lid.
3. Switch pump on, then add pre-mixed solu-

tion directly into pump hair and lint pot until a foamy or coloured discharge appears at the backwash valve sight glass. This indicates complete saturation of the sand bed. \*Switch pump off immediately this occurs.

4. Refit pump lid and allow filter to stand overnight.
5. The following morning, return valve to backwash position, \*open pump inlet valve if fitted, switch pump back on and carry out complete backwash and rinse procedure before returning to normal filter operation.

Filter cleaning is recommended twice yearly for optimum filter performance.

## DIRECTIONS FOR SOAKING CARTRIDGE OR D.E. SEPTUMS

### DIRECTIONS

1. Fill a plastic container with a suitable quantity of water.
2. Add 300grams of filter cleaner per 20 litres of water and mix until dissolved.
3. Hose cartridge or septum, then immerse, ensuring all surfaces are fully covered.
4. Soak overnight and remove the following morning.
5. Hose cartridge or septum again to remove dissolved solids.
6. Re-fit to filter and commence normal filter operation.

NOTE: Filters should be chemically cleaned every 6 months to remove oils, grease and scale from fabric. This will extend filter life.

SEEK PROFESSIONAL ADVICE IF UNSURE OF CLEANING PROCEDURE

# BACKWASHING SAND & D.E. FILTERS

PLEASE NOTE: Cleaning of filter will be necessary when pressure gauge reaches 50 kpa above clean start up pressure, or a maximum of 110 kpa.

Pump and skimmer baskets should be cleaned and salt chlorinator switched off before backwashing. Check water level after backwash and top pool up if level is low.

## MULTI-PORT VALVE OPERATION

To select each valve function depress handle and rotate.

1. Turn pump off and rotate valve handle to BACKWASH
2. Turn pump on and backwash until sight glass is clear (approximately 2 minutes.)
3. Turn pump off and rotate valve handle to RINSE for sand or FILTER for D.E. filters.
4. Turn pump on and run for approximately 30 seconds.

For sand filters do the following additional steps:

5. Turn pump off and return valve handle to FILTER.
6. Turn pump on - Filter is now clean and ready for next filter cycle.

For D.E. filters do the following additional steps:

5. Repeat steps 1-2 and 3
6. Turn pump on and bleed air from filter tank. Slowly add D.E. slurry into skimmer box and filter continuously for at least 4 hours to compact D.E. powder onto grid surfaces

## OTHER VALVE FUNCTIONS

### RECIRCULATE

Allows water to be returned to pool without passing through filter.

### WASTE

Allows water to be pumped directly to drain without passing through filter and is suitable for reducing water level or for vacuuming dirt or debris from pool.

Vacuuming to waste reduces water level quickly. Pool may require topping up after this operation.

### CLOSED

For maintenance purposes only, pump must not be switched on in this position.

**MULTI PORT VALVE WILL REQUIRE SERVICE WHEN HANDLE IS STIFF AND DIFFICULT TO MOVE OR IF WATER IS BEING LOST THROUGH BACKWASH LINE DURING NORMAL FILTER OPERATION.**

## BACKWASH NOTES

A silicone based lubricant must be used for all filter "O" rings as vaseline will cause the rubber to perish.

# cleaning salt cells

Salt chlorination is the most popular automatic means of sanitising pool water today. Whilst it simplifies the sanitation process, it is necessary to service and clean the cell plates of a manual system regularly.

## THE CELL

Salt cells come in a variety of configurations, and depending on the make, may need to be removed as a total unit from the cell housing for immersion in a separate cleaning container. Alternatively, the complete cell may have to be removed, by undoing barrel union nuts or hose clamps. Cap the cell at one end so that the cleaning fluid may be retained within the cell body for the cleaning process to take place.

## SCALE

Calcium is present in all pool water to varying degrees and through a process of electrolysis will form as a hard crystalline deposit on cell plates.

Failure to remove scale will cause chlorinator to produce less chlorine as the scale builds up, and can impair water flow through the cell housing. Age of the cell may also have an influence on the scale build up and production capability.

## CLEANING COMPOUNDS

Cell cleaning compounds such as saf-t-cell are recommended. They are a blend of select acids and buffers allowing for the efficient but safe removal of scale

from cell plates. An addition of Aquashield 3 at the rate of 1litre per 50,000 litres of pool water will assist in reducing the severity of the calcium scale.

## THE CLEANING PROCESS

- Switch pump off and close any valves to avoid water loss.
- Remove cell electrodes or the complete cell.
- Use a wooden or plastic probe to remove as much scale as possible from between the electrodes
- Hose with a fine jet of water and pressure to assist scale removal.
- Fill cell-cleaning container with pre-mixed solution and immerse cell plates, ensuring full coverage.
- Soak cell plates and replace cleaning solution whenever activity ceases, until cell is totally clean. Solution will bubble when active. If complete cell housing is removed, then cap one end and stand vertically but securely. Pour cleaning solution into cell to activate. Replace solution when activity is neutral until cell is clean.
- Once clean, hose cell plates and reinstall into return line.
- Open valves and recommence pump operation.
- Check chlorinator is producing satisfactorily, and adjust salt level to specified concentration if not.

**CLEAN CELL REGULARLY FOR MAXIMUM CHLORINATOR PERFORMANCE.**

# chapter 7

# spacare

Successful spa control is achieved when water balance, sanitation and filtration are monitored and adjusted to suit the bathing load, contamination, and temperature settings of the spa.

Each component of the treatment programme will support the others in ensuring a clean healthy bathing environment. Working together, they can prevent the transfer of bacteria or viruses between spa users, and make hydrotherapy a beneficial and relaxing pastime for the whole family.

## **TREATING SPAS WITH BROMINE OR CHLORINE COMPOUNDS**

It is essential to adopt a regular maintenance routine for optimum water quality and sanitation effect. Testing with a reliable kit will ensure correct parameters are achieved. The levels recommended will remain constant for most spa water conditions.

### **WATER BALANCE**

Establishes the correct parameters of pH, Alkalinity and Hardness, and is the measure of the amount, or activity of minerals in the spa water. Use a suitable measuring device for all chemical additions and be careful to avoid over dosing.

### **ALKALINITY**

125ppm.to150ppm. - This will buffer pH and is the measure of Bicarbonate salts present.

### **pH LEVELS**

7.4 to 7.6 - Slightly alkaline to maximise sanitiser effect and comfort of bathers.

### **CALCIUM HARDNESS**

150ppm. - Prevents corrosion or scale formation and is the measure of calcium salts present.

### **SANITATION**

Measure the available free chlorine or bromine in the water to ensure consistent bacteria kill and oxidation of bather contamination. Recommended sanitation levels Chlorine 2.0 to 3.0 ppm and Bromine: 4.0 to 6.0 ppm

### **FILTRATION**

Cycle will depend upon the need to recover water clarity and maintain temperature settings, with a minimum of three hours of maintenance filtration required daily.

Substantially longer cycles may be necessary because of prevailing conditions or bather use.

Water should be visually clear, free of odour, and shouldn't cause skin irritation if treated and maintained correctly.

## chapter 8

# spa chemicals

**WARNING:** All spa chemicals can be reactive when mixed or contaminated. For the safety of persons adding or making adjustments, it is recommended that only clean measuring devices be used. Dosage rates specified are recommendations only. Test after each chemical addition to establish if correct adjustment is achieved.

### **TO RAISE TOTAL ALKALINITY**

Add Alkalinity and pH increaser at the rate of 18 grams per 1000 litres of spa water to raise alkalinity 10 ppm.

### **TO LOWER TOTAL ALKALINITY**

Partly empty spa and dilute with water with a lower total alkalinity. Alternatively, add a maximum of 10 grams of Dry Acid per 1000 litres of spa water to lower Alkalinity 10 ppm.

### **TO RAISE pH**

Alkalinity and pH increaser has a pH of 8.3 and will raise pH when added. Add at the rate of 18 grams per 1000 litres of spa water. Test after each addition. Alkalinity will be raised correspondingly.

### **TO LOWER pH**

Add Dry Acid at a maximum rate of 10 grams per 1000 litres of spa water per addition. Filter for 1 hour and re-test before making further additions.

### **TO RAISE CALCIUM HARDNESS**

Add 10 grams of Hardness Increaser per 1000 litres of spa water to raise hardness 10 ppm.

### **TO LOWER CALCIUM HARDNESS**

Dilute with fresh water or empty spa and refill with water that has lower calcium hardness.

### **OTHER SPA PRODUCTS**

A wide range of speciality chemicals and accessories are available for enhancing bather comfort and maintenance of spa pool equipment.

Consult your spa service professional for further information.

# appendix a mypoolprofile

## CONTACT DETAILS

name		
address		
phone		email

## POOL AND EQUIPMENT SPECIFICATION

pool capacity	litres	pool cover	
surface/finish		vacuum hose type	
filter make		size	metres
model		vacuum head	
type		telescopic handle	
pump make		pool broom	
model		algae brush	
watts		leaf rake/shovel	
chlorinator make		pool scoop	
model		test kit	
salt level		cell cleaning canister	
automatic cleaner		probes	
underwater light		fine hose nozzle	

## SECURITY CONSIDERATIONS

self-closing gate	
timeclock weatherproofed	
other	

## FOR ALL SERVICE AND CHEMICAL REQUIREMENTS CONTACT

contact details	
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