



SWIMMER



Water Treatment Guide



Swimmer Water Treatment Guide

The water treatment aspect of maintaining your swimming pool may at first glance seem complicated and time consuming but in reality is straightforward and need only take a few minutes each week. The secret to keeping your pool water healthy, clean, comfortable and inviting is to undertake a little maintenance on a regular basis.

This guide is written to inform you about pool maintenance and in particular, water treatment using chlorine or bromine based sanitisers (disinfectants) and explains the importance of establishing and maintaining the correct chemical levels. There is also a brief introduction to the role of filtration in keeping your pool water clear, bright and attractive.

At the back of the guide there is a section on pool and chemical safety; please read this thoroughly before you begin using or treating your pool, and always read and follow the instructions that are printed on the chemical containers before application.

Thank you for choosing Swimmer for your pool water treatment products.

Quick Search

You can jump to sections in your Swimmer Water Treatment Guide by clicking on the thumbnails to the right of the screen.

For a more detailed search, enter a keyword into the tool bar search box at the top of the screen and hit return. Where more than one reference to your key word is found use the find next icon at the top right of the toolbar to jump to each one in turn .

Understanding your Pool

How to calculate your pool volume

Rectangular Pool:

Cubic metres (m³) - length in metres x width in metres x average water depth in metres

(Example - 9.0m x 4.5m x 1.5m = 60.75m³)

Gallons - length in feet x width in feet x average water depth in feet x 6.25

(Example - 30' x 15' x 5' x 6.25 = 14,063 gallons)

Round Pool:

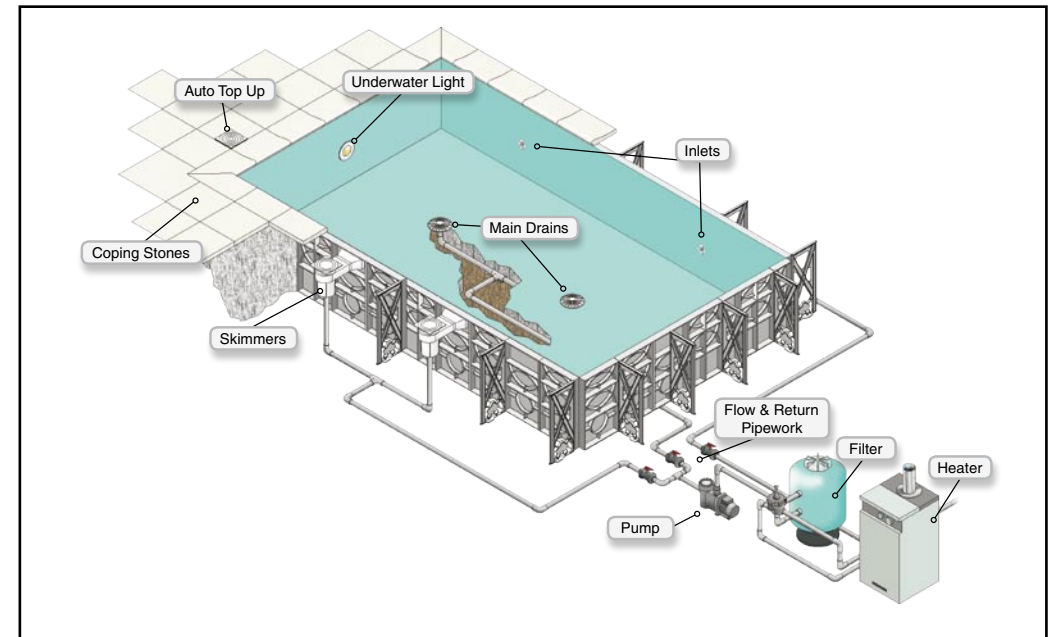
Cubic metres (m³) - diameter in metres x diameter in metres x average water depth in metres x 0.8

(Example - 4.5m x 4.5m x 1.0m x 0.8 = 16.2 m³)

Gallons - diameter in feet x diameter in feet x average water depth in feet x 4.9

(Example - 15' x 15' x 3'6" x 4.9 = 3,859 gallons)

Sample pool layout and glossary



Useful Information

To Convert	Into	Multiply By
Pints _____	Litres _____	0.568
Feet _____	Metres _____	0.30480
Litres _____	Pints _____	1.761
Metres _____	Feet _____	3.2808
Gallons _____	Litres _____	4.546
Square Feet _____	Square Metres _____	0.0929
Litres _____	Gallons _____	0.22
Square Metres _____	Square Feet _____	10.764
Cubic Metres of Water _____	Gallons _____	220

To Convert	Into	Multiply By
Ounces _____	Grammes _____	28.3495
Horse Power _____	Watts _____	746
Grammes _____	Ounces _____	0.03527
Watts _____	Horse Power _____	0.00134
Pounds _____	Kilogrammes _____	0.45359
Kilowatts _____	BTU _____	3412
Kilogrammes _____	Pounds _____	2.20462
BTU _____	Kilowatts _____	0.000293



Circulation & Filtration

Assuming that your pool is now full of water and you are ready to begin preparing it for use, the first thing to consider is the circulation system. When your pump is running it draws water from the pool via the suction fittings such as the main drain(s) and skimmer(s), see Understanding your Pool on page 3, and pushes it through your filter, heater and chemical feeder before it is returned to the pool via the inlets.

As water flows through the filter, particles that are suspended in it are captured and retained within the filter media - this removal of particles is essential and is how your water clarity is achieved and maintained. As the water is only filtered when it is being circulated, we would recommend that you run the pump for a minimum of eight hours per day, and for best results 24-hours a day during the swimming season.

Generally there are three types of filter used for swimming pools - cartridge, sand and diatomaceous earth (D.E.), although D.E. is not commonly used these days. Cartridge filters are normally found, although not exclusively, on smaller above ground pools while in-ground sand filters are the norm.

Cartridge Filters

Inside the cartridge filter you will find a cartridge element that the pool water flows through. As the water passes through the element the particles and debris are removed and collected within the folds of the cartridge, as the collected matter builds up the water flow through the element diminishes.

To clean the element switch the pump off, remove the element from its housing, hose thoroughly with a garden hose, don't use a pressure washer as it will cause damage to the element, then soak overnight in a solution of Swimmer Filter Cleaner. After soaking flush with clean water and if possible allow the element to dry before returning it to service.

Sand Filters

The advantage of sand filters is that you don't have to remove and clean cartridge elements, making it easier and less time consuming to maintain your filtration system. In place of the cartridge element, the filter tank contains specially graded silica sand and as the water flows through it particles are trapped and retained, thus creating clear water. As more and more particles are retained, so the flow of water through the filter slows down and the pressure within the tank increases. You will notice this on the pressure gauge, which is usually on the multiport selector valve or the top of the filter tank. To remove the particles trapped in the sand you need to backwash the filter, typically we would suggest that you backwash the filter weekly or more frequently if the pressure gauge indicates a need to.

When you backwash a sand filter the flow of water through the filter is reversed, (rather than the pool water entering the top of the filter and percolating down through the filter sand before going back to the pool), the water comes into the filter through the bottom and rises up through the sand, dislodging debris on the top. The backwash water along with the debris goes to waste and not back into the pool.

Before backwashing the filter, make sure there is sufficient water in the pool – the level should be at least halfway up the skimmer opening. Turn off the pump. If there is a valve on your waste line make sure this is open, turn the multiport selector valve to the backwash position and turn the pump back on. On the multiport selector valve there will probably be a sight glass, you will see that initially the water in the sight glass is dirty and /or cloudy, once the water in the sight glass is clear, about 2 – 3 minutes; you can stop the backwash by turning off the pump. After the backwash, turn the multiport selector valve to rinse and turn the pump on again, wait until the water in the sight glass is clear again, 20 – 30 seconds normally, turn the pump off. If you opened a valve on the waste line you should now close it. Turn the multiport selector valve back to the filtration position and turn the pump back on, the backwash procedure is now complete.

Although backwashing the filter removes debris caught in the filter sand it doesn't actually clean the sand, so to maintain the filters efficiency the sand should be chemically cleaned annually using Swimmer Filter Cleaner and replaced every 3 – 5 years.





Testing your Pool Water

Regularly testing your pool water is essential, as without testing you will have no idea what the chlorine or bromine, pH, total alkalinity and calcium hardness levels are. There are broadly four types of test kit used for testing pool water; test strips, pooltesters, comparator test kits and electronic photometric test kits. For the testing of domestic swimming pools it is usually test strips or pooltesters that are used. Regardless of the testing method you choose, it is important that you test your pool water ideally every day during the swimming season but, twice a week is the minimum.

Swimmer Insta-Test Strips

There is a choice of two different Insta-Test strips:

- Insta-Test 3 that enable you to test free chlorine or bromine, pH & total alkalinity.
- Insta-Test 5 that enable you to test free chlorine or bromine, total chlorine, pH, total alkalinity & calcium hardness.

Although not as accurate as using a test kit, test strips are very quick and easy to use and take the 'chore' out of testing your pool water. Simply take a test strip from the pot, dip it into your pool water, swirl it round a few times, hold level (being careful not to shake off the excess water), wait for the prescribed length of time and then compare the colour of the pads with the colours printed on the test strip pot.

Pooltesters

Pooltesters are test kits that use reagent tablets to determine the chlorine, bromine or pH levels. Take the pooltester to the poolside and turn it upside down, lower it into the pool to about an elbows depth and then turn it the correct way up so that it fills up with pool water. Once full of water put the kit on a level surface and add a Phenol Red tablet to test the pH level and a DPD No.1 tablet to check the free chlorine level.

For more comprehensive water testing, including total dissolved solids, Cyanuric acid (stabiliser) and metals, take a water sample to your Swimmer supplier every 4 to 6 weeks and they will be pleased to assist you.





Balance your Pool Water

Establishing and maintaining the correct water balance is important for a number of reasons:

- Chemical efficiency
- Bather comfort
- Protection of pool and plantroom equipment
- Water quality and appearance

Some people believe that keeping the right pH is all that is needed to achieve the correct water balance; this isn't the case and although pH is important there are other factors that also need to be considered. In the table below we have illustrated the main properties that make up water balance and the ideal levels that should be maintained.

Ideal Pool Water Levels

- | | |
|--------------------------|---------------------|
| • Calcium Hardness | 200 – 275mg/l |
| • Total Alkalinity | 80 – 150mg/l |
| • pH | 7.2 – 7.6 |
| • Total Dissolved Solids | Less than 1,500mg/l |

Calcium Hardness

Calcium hardness (or total hardness) is the measure of how hard or soft the water is. The level will vary depending on where your water supply comes from, for example, in some parts of Scotland the water is very soft and in parts of Kent the water can be very hard. The hardness depends upon the amount of mineral salts (mainly calcium) that are dissolved in the water; the more salts there are the harder the water is.

Problems associated with incorrect calcium hardness levels

Low calcium hardness (Less than 200mg/l)

- Corrosive water
- Etching of surfaces
- Staining
- Skin & eye irritation
- Foam

High calcium hardness (More than 275mg/l)

- Scale formation
- Filter calcification
- Cloudy water
- Skin & eye irritation
- Reduced sanitiser effectiveness

If the calcium hardness of your pool water is less than 200mg/l then it should be raised using Swimmer Calcium Hardness Increaser, details of dose rates can be found below:

Swimmer Calcium Hardness Increaser Dose Rate Table

Pool Volume			To Increase Calcium Hardness by		
Cubic Metres	Litres	Gallons	10mg/l	25mg/l	50mg/l
4.55 m ³	4,545	1,000	68g	170g	340g
11.36 m ³	11,364	2,500	170g	425g	850g
22.73 m ³	22,727	5,000	340g	850g	1.70Kg
45.45 m ³	45,455	10,000	680g	1.70Kg	3.40Kg





Swimmer Stain & Scale Inhibitor

If the calcium hardness of your pool water is greater than 275mg/l then Swimmer Stain & Scale Inhibitor should be used to help prevent scale deposits within the filter, heater, pipework and on pool surfaces.

Swimmer Stain & Scale Inhibitor Dose Rate Table

Pool Volume			Dose Rates	
Cubic Metres	Litres	Gallons	Initial	Monthly
4.55 m ³	4,545	1,000	100ml	50ml
11.36 m ³	11,364	2,500	250ml	125ml
22.73 m ³	22,727	5,000	500ml	250ml
45.45 m ³	45,455	10,000	1.00Ltr	500ml

Total Alkalinity

Total alkalinity is a measurement of the water's ability to resist pH change. If the total alkalinity is low, then the pH can fluctuate making it difficult to control and maintain at the ideal level.

If the total alkalinity is high, then the pH can be difficult to change and will keep rising. A high total alkalinity can also lead to the formation of a bicarbonate scale on pool surfaces, within pipework and in plantroom equipment.

If the total alkalinity of your pool water is below 80mg/l it should be raised using Swimmer Alkalinity Increaser, the table below indicates the dosage quantities required:

Swimmer Alkalinity Increaser Dose Rate Table

Pool Volume			To Increase Total Alkalinity by		
Cubic Metres	Litres	Gallons	10mg/l	25mg/l	50mg/l
4.55 m ³	4,545	1,000	81g	203g	405g
11.36 m ³	11,364	2,500	203g	508g	1.01Kg
22.73 m ³	22,727	5,000	405g	1.01Kg	2.02Kg
45.45 m ³	45,455	10,000	810g	2.02Kg	4.05Kg

If the total alkalinity of your pool water is above 150mg/l then Swimmer pH Reducer can be used to lower it. When applying pH Reducer to lower total alkalinity levels the product should be pre-dissolved and then 'slug' dosed into one area at the deep end of the pool.

The dose rates are indicated below. It is recommended that the total reduction required is split into three applications over a three day period; check both the total alkalinity and pH levels in between applications:

Swimmer pH Reducer Dose Rate Table (for total alkalinity reduction)

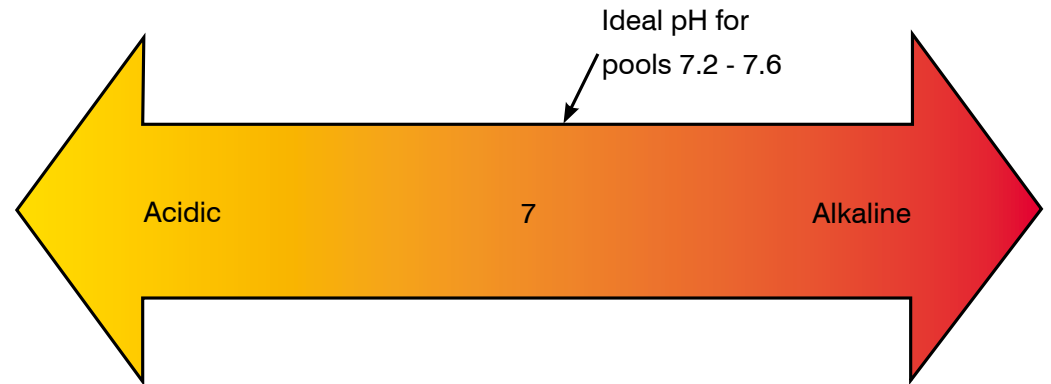
Pool Volume			To Reduce Total Alkalinity by		
Cubic Metres	Litres	Gallons	10mg/l	25mg/l	50mg/l
4.55 m ³	4,545	1,000	108g	270g	540g
11.36 m ³	11,364	2,500	270g	675g	1.35Kg
22.73 m ³	22,727	5,000	540g	1.35Kg	2.70Kg
45.45 m ³	45,455	10,000	1.08Kg	2.70Kg	5.40Kg





pH

pH is a measure of how acidic or how alkaline (not to be confused with total alkalinity) the water is.



As you can see from the above diagram the pH scale is 0 to 14, with 0 being very acidic and 14 very alkaline. pH 7 is neutral and for pools the pH should be maintained between 7.2 and 7.6, this being slightly alkaline protects the pool and plantroom equipment from aggressive, corrosive water and is comfortable for bathers.

Problems Associated with Incorrect pH Levels

pH below 7.2

- Corrosive water.
- Etching of surfaces.
- Staining.
- Skin & eye irritation.
- Damage to plantroom equipment.

pH above 7.6

- Scale formation.
- Filter calcification.
- Cloudy water.
- Drying to skin.
- Reduced effectiveness of chlorine.

Swimmer pH Increaser & Swimmer pH Reducer

If the pH of your pool water is either low or high it should be corrected using Swimmer pH Increaser or Swimmer pH Reducer. The following tables will help you calculate the dose rate to suit your pool:

Swimmer pH Increaser Dose Rate Table

Pool Volume			pH Increaser (to increase pH)	
Cubic Metres	Litres	Gallons	Dose Rate	
4.55 m ³	4,545	1,000	50g	Re-check pH after 24-hours & repeat dose if required
11.36 m ³	11,364	2,500	125g	
22.73 m ³	22,727	5,000	250g	
45.45 m ³	45,455	10,000	500g	

Swimmer pH Reducer Dose Rate Table

Pool Volume			pH Reducer (to lower pH)	
Cubic Metres	Litres	Gallons	Dose Rate	
4.55 m ³	4,545	1,000	50g	Re-check pH after 24-hours & repeat dose if required
11.36 m ³	11,364	2,500	125g	
22.73 m ³	22,727	5,000	250g	
45.45 m ³	45,455	10,000	500g	





Total Dissolved Solids (T.D.S.)

T.D.S. is, as the name suggests, the sum of everything that is dissolved in the water including minerals, chemicals and debris. The maximum recommended T.D.S. level is 1,500mg/l, when the level rises above this it is time to do some dilution, by removing some of the old pool water and adding some fresh.

High T.D.S. levels lead to:

- Corrosion
- Poor chemical efficiency
- Increased chemical consumption
- Dull looking water
- Salty tasting water

Regular backwashing of the filter as mentioned on page 5 will mean that your pool will need topping up with fresh water fairly often; this will help keep the T.D.S. level under control and reduce the need to drain down and refill.

Chlorine Stabiliser

Although stabilising chlorine loss to sunlight isn't one of the properties that make up water balance, we feel this is the best place to talk about it because while you are getting your pool water balanced and ready for use, now is a good time to add chlorine stabiliser if it is required.

One of the major reasons for chlorine loss from swimming pools is that it is drawn out of the pool by the UV rays of the sun. Adding chlorine stabiliser to an outdoor pool at the start of the swimming season will substantially reduce the amount of chlorine lost to sunlight, saving you money and making it easier to maintain the correct chlorine levels.

Many of the chlorine donors used to treat the pool water already contain stabiliser, we would therefore recommend that you get the level tested by your Swimmer supplier before adding any more. The ideal chlorine stabiliser level is 60mg/l, if the level in your pool is less than this use Swimmer Chlorine Stabiliser to increase it.

Swimmer Chlorine Stabiliser Dose Rate Table

Pool Volume			To Increase Level by		
Cubic Metres	Litres	Gallons	10mg/l	25mg/l	60mg/l
4.55 m ³	4,545	1,000	45g	113g	271g
11.36 m ³	11,364	2,500	113g	283g	678g
22.73 m ³	22,727	5,000	225g	563g	1.36Kg
45.45 m ³	45,455	10,000	450g	1.12Kg	2.71Kg

If the chlorine stabiliser level is greater than 200mg/l it is time to drain some of the existing pool water out of the pool and top it up with fresh water to lower the level. As with T.D.S. levels, frequent top-ups with fresh water due to regular backwashing will help to keep the chlorine stabiliser level from rising too high.

Remember that water balance can change with dilution by rainwater, the introduction of fresh water to top the pool up, the chemicals used to oxidise and sanitise and by the bathers using the pool - so keep checking and adjusting the levels throughout the swimming season.





Sanitise your Pool Water

The reason that sanitisers are used in pools is to ensure that the water is kept healthy by preventing and killing bacteria. This is achieved by continuously and consistently maintaining a level of sanitiser (disinfectant) in the water with either chlorine or bromine.

Chlorine

Chlorine is the most commonly used chemical to achieve satisfactory bacteriological and chemical purity in swimming pools. It must be present in the 'free' form to kill bacteria and oxidise organic matter derived from bathers. Provided the water is balanced (see pages 8 - 15) chlorine levels of between 1.5 to 3.0mg/l are sufficient to maintain healthy, clean water. A well managed chlorine treated pool will have no odour and levels of chloramines (combined chlorine) of less than 0.5mg/l.

Combined chlorine is created as a result of a reaction between free chlorine and organic matter and is a mixture of Monochloramine, Dichloramine and Nitrogen Trichloride. The latter is mostly produced when the water is not being treated adequately and gives rise to the 'chlorine' odour.

Swimmer makes it easy for you to maintain your sanitiser level by giving you an extensive choice of products to suit your pool situation, preferred dosing method and budget.

Swimmer Stabilised Chlorine Granules

A traditional, granular chlorine donor that is still popular with many pool owners that prefer dose rate flexibility. These granules are rapid dissolving making pre-dissolving and application easy. The granules have a pH value of about 6.0 - 7.0, which is fairly close to the ideal pool water pH level and so will have little effect on the pH level of your pool water. Another feature of Stabilised Chlorine Granules is that they contain Cyanuric acid (chlorine stabiliser), this can be beneficial for outdoor pools as it reduces the amount of chlorine lost to sunlight - making it easier for you to maintain the correct chlorine level in your pool.

Swimmer Stabilised Chlorine Granules Dose Rate Table

Pool Volume			To Increase Level by		
Cubic Metres	Litres	Gallons	1mg/l	2mg/l	3mg/l
4.55 m ³	4,545	1,000	8g	16g	25g
11.36 m ³	11,364	2,500	21g	42g	62g
22.73 m ³	22,727	5,000	41g	82g	124g
45.45 m ³	45,455	10,000	83g	166g	248g





Swimmer Multifunctional Stabilised Chlorine Granules

A new and improved version of the above; these granules still offer the dose rate flexibility, fairly neutral pH value and chlorine stabilisation but also now include clarifiers and extra oxidisers to help improve water quality and clarity.

Swimmer Multifunctional Stabilised Chlorine Granules Dose Rate Table

Pool Volume			To Increase Level by		
Cubic Metres	Litres	Gallons	1mg/l	2mg/l	3mg/l
4.55 m ³	4,545	1,000	10g	20g	30g
11.36 m ³	11,364	2,500	25g	49g	74g
22.73 m ³	22,727	5,000	49g	99g	148g
45.45 m ³	45,455	10,000	99g	197g	296g

Swimmer Small Chlorine Tablets

Small Chlorine Tablets offer a convenient way of maintaining chlorine levels in pool water. They should be dosed via a chemical feeder (trichlorinator), floating dispenser or skimmer. As the tablets are small it is easy to vary the number of tablets to maintain the free chlorine level of 1.5 to 3.0mg/l. They have a high level of available chlorine and contain chlorine stabiliser.





Swimmer 200g Chlorine Tablets

An easier way of maintaining chlorine levels in your pool water; 200g Chlorine Tablets are placed in the skimmer, floating dispenser or chlorine feeder (trichlorinator). When dosed via the skimmer the tablet(s) will dissolve slowly over a 3 to 4 day period, the rate at which they dissolve will vary depending upon water flow and temperature. They have a high level of available chlorine and contain chlorine stabiliser.

Swimmer Multifunctional 200g Chlorine Tablets

A new and improved version of the above; these tablets still offer an easier way of maintaining chlorine levels and are applied via the skimmer, floating dispenser or chlorine feeder (trichlorinator). They have a higher pH value than traditional chlorine tablets, which reduces the amount of pH regulation you need to do, and as well as being stabilised to reduce chlorine loss to sunlight they also contain clarifier and Algicides to help improve clarity and reduce the risk of algae formation.





Swimmer Multifunctional Floating Chlorine Dispenser

The Multifunctional Floating Chlorine Dispenser is pre-filled with multifunctional chlorine tablets, which will dissolve slowly over a 10 to 14 day period making this product ideal to use whilst you are away on holiday and during the winter when the pool is not in use. The tablets within the feeder have a high level of available chlorine, contain chlorine stabiliser and clarifier.

All the Chlorine Tablets and the Multifunctional Floating Chlorine Dispenser are designed to maintain chlorine levels, so before they are used you must satisfy any chlorine demand (see page 25) and establish a chlorine level of between 1.5 – 3.0mg/l. Always read and follow the instructions that are printed on the product label.

Chlorine Sanitiser Selection Chart

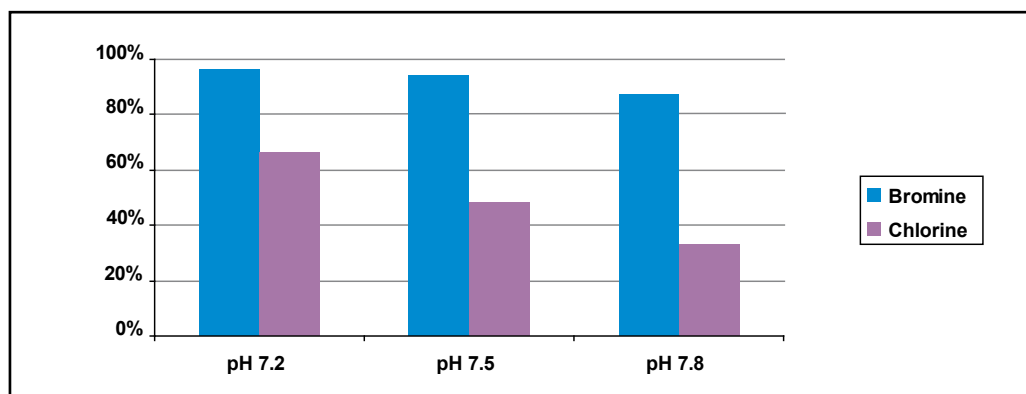
	Hand Dosed	Feeder or skimmer	Approx. Dose Frequency (based on skimmer application for chlorine tablets)	pH	Stabilised	Clarifiers	Oxidisers	Algicides
Stabilised Chlorine Granules	✓		1 or 2 days	6.0 – 7.0	✓			
Multifunctional Stabilised Chlorine Granules	✓		1 or 2 days	6.0 – 7.0	✓	✓	✓	
Small Chlorine Tablets		✓	2 – 3 days	2.5 – 3.5	✓			
200g Chlorine Tablets		✓	3 – 4 days	2.5 – 3.5	✓			
Multifunctional 200g Chlorine Tablets		✓	3 – 4 days	3.5 – 4.5	✓	✓		✓
Multifunctional Floating Chlorine Dispenser			10 – 14 days	3.5 – 4.5	✓	✓		

Bromine

Bromine is similar to chlorine in its effectiveness as a sanitiser but there are some important differences:

- Pools sanitised with bromine do not require the addition of chlorine stabiliser, as bromine is not lost to sunlight in the way chlorine is.
- Bromine should be dosed into the pool via a chemical feeder (brominator), which is usually installed in the plantroom after the filter and heater.
- Bromine, like chlorine, combines with organic compounds to form bromamines, but unlike chloramines, bromamines cause little or no eye, skin and nasal irritation. Also there is not the pungent smell sometimes associated with certain types of chloramines.
- As it takes 2.2mg/l of bromine to equal 1mg/l free chlorine, bromine levels need to be kept between 3.0 to 5mg/l.
- Bromine retains better levels of efficiency over a wider pH band than chlorine, see the chart below.

Effects of pH Level on Sanitiser Efficiency



Swimmer Bromine Tablets

Swimmer Bromine Tablets should be dosed via a chemical feeder (brominator), which is easy and inexpensive to install retrospectively to an existing pool. When set up correctly your brominator will dispense the correct amount of bromine into the pool to maintain the ideal level between 3.0 to 5.0mg/l and all you need to do is top up the brominator with new tablets as and when required. This makes maintaining the sanitiser level in your pool very straightforward.





Swimmer Chlorine Reducer

If the chlorine level increases above a level of 10mg/l then bathers should be discouraged from using the pool. Chlorine Reducer can be used to lower chlorine, and bromine, levels so pool use can be resumed. Unless you can accurately measure the chlorine or bromine level and are sure of the amount of water in the pool, we strongly recommend that you half the dose rate indicated in the table below for the initial dose. Once applied leave for 24 hours then re-test the sanitiser level and add more if required.

Swimmer Chlorine Reducer Dose Rate Table

Pool Volume			To Reduce Chlorine Level by		
Cubic Metres	Litres	Gallons	1mg/l	3mg/l	5mg/l
4.55 m ³	4,545	1,000	23g	68g	113g
11.36 m ³	11,364	2,500	57g	170g	282g
22.73 m ³	22,727	5,000	113g	340g	565g
45.45 m ³	45,455	10,000	227g	681g	1.13Kg

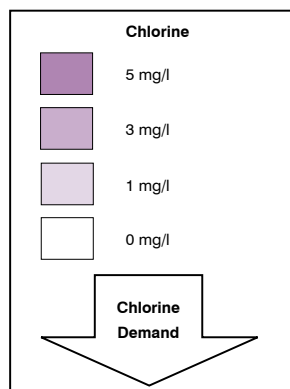
Oxidise your Pool Water

Bathers, young children and rain all introduce waste products into your pool water. As these waste compounds build up they become a source of food for bacteria and algae encouraging their growth and making your pool water unhealthy and cloudy. Organic wastes will react with chlorine creating chloramines (combined chlorine) that have an unpleasant pungent odour and are irritating to eyes and nose. Oxidising or shock dosing destroys chloramines and organic wastes helping to keep your pool comfortable for bathers.

Chlorine Demand

Chlorine demand is at the route of many pool water problems and could be described as the amount of chlorine necessary to destroy bacteria, algae and other organic wastes. The only way to overcome chlorine demand is to keep shocking the pool until its 'hunger' for chlorine is satisfied; this can take a few days depending on what the level of demand is. Shock dose the pool using sufficient Swimmer Calcium Hypochlorite Granules, Rapid Shock Granules or 10/11% Sodium Hypochlorite to increase the chlorine level by 10mg/l. After 24 hours check the chlorine level using your test kit. If the chlorine level is 5mg/l or lower then it is likely that the chlorine demand has not yet been satisfied, so repeat the shock dose. Keep repeating this process until after 24 hours the chlorine remains above 5mg/l. Then, wait for another 24 hours and check the chlorine level again. If it is still around the 5mg/l level then you have probably satisfied the waters 'hunger' for chlorine and satisfied the demand.

Useful Tip: As soon as possible after a thunderstorm shock dose your pool with a 5mg/l dose of Swimmer Calcium Hypochlorite Granules, Rapid Shock Granules or 10/11% Sodium Hypochlorite. The reason for this is that lightning creates nitrogen in the atmosphere and the rain washes this nitrogen into your pool. Nitrogen is plant food and algae thrive on it, so pool water can quickly turn green after a thunderstorm. A shock dose of chlorine can help prevent this.





Swimmer Calcium Hypochlorite Granules

A traditional shock treatment product, these calcium hypochlorite granules have an available chlorine level of approximately 65% w/w making them a good chlorine donor for pool water problem solving.

Pool Volume			To Increase Level by		
Cubic Metres	Litres	Gallons	1mg/l	5mg/l	10mg/l
4.55 m ³	4,545	1,000	7g	35g	70g
11.36 m ³	11,364	2,500	18g	88g	175g
22.73 m ³	22,727	5,000	35g	175g	350g
45.45 m ³	45,455	10,000	70g	350g	700g

Swimmer Rapid Shock Granules

A new generation calcium hypochlorite granule; Rapid Shock Granules are quicker to dissolve making application easier and have a higher level of available chlorine meaning less product can be used.

Pool Volume			To Increase Level by		
Cubic Metres	Litres	Gallons	1mg/l	5mg/l	10mg/l
4.55 m ³	4,545	1,000	7g	32g	65g
11.36 m ³	11,364	2,500	17g	81g	163g
22.73 m ³	22,727	5,000	33g	163g	325g
45.45 m ³	45,455	10,000	67g	325g	650g





Swimmer 10/11% Sodium Hypochlorite

A shock treatment in liquid form making for easy application as no pre-dissolving is necessary. As the name suggests the available chlorine level is 10/11% w/w at time of packing.

Swimmer 10/11% Sodium Hypochlorite Dose Rate Table

Pool Volume			10/11% Sodium Hypochlorite To Increase Level by		
Cubic Metres	Litres	Gallons	1mg/l	5mg/l	10mg/l
4.55 m ³	4,545	1,000	40ml	200ml	400ml
11.36 m ³	11,364	2,500	100ml	500ml	1.00Ltr
22.73 m ³	22,727	5,000	200ml	1.00Ltr	2.00Ltr
45.45 m ³	45,455	10,000	400ml	2.00Ltr	4.00Ltr

Regular Oxidation (Shock Dosing)

Regularly oxidising pool water, (ideally weekly) will pay dividends in the prevention of pool water problems. Bather wastes such as perspiration, urine and cosmetics can build up in pool water providing nutrients for bacteria and algae, a weekly oxidising treatment or shock dose will destroy these wastes and help maintain comfortable bathing conditions.

As with satisfying chlorine demand the ideal products for regular oxidation are Swimmer Calcium Hypochlorite Granules, Rapid Shock Granules or 10/11% Sodium Hypochlorite. Once a week add a 5mg/l dose, (see dose rate table for quantities) of any of these products, and leave your pool cover off for an hour after application.

Algae Prevention

Algae are microscopic plant life that in the right conditions, multiply rapidly usually turning pool water green and opaque. Because algae are so small they do not become visible to the human eye until there are millions of them, so the early stages of an algae attack can easily go undetected and therefore untreated. Recovering an algae infested pool can be time consuming and expensive, which is why algae prevention is always preferable to having to cure a problem.

The secret to keeping your pool algae free is to maintain the correct water balance, oxidise regularly to destroy sources of algae food and organic wastes, apply algicide to support the sanitiser (chlorine or bromine), continuously keep a consistent level sanitiser in the water and test regularly to ensure that the correct levels are being maintained.

Swimmer Algicides have been specially formulated to support your efforts of keeping algae out of the pool. There is a choice of longlife and regularly dosed Algicides. In our opinion the use of both is the most effective way to prevent algae growth.





Kleen Pool Algicide

Longlife algicide is usually added to the pool shortly after spring commissioning. It is a copper based product that will remain in the water for up to six months, and so acts as a great backstop in case you forget to add an algicide or go away on holiday and are unable to dose the pool. The disadvantage of this type of algicide is that it lasts up to six months, but you only know when it has stopped being effective because algae growth will appear in the pool. The use of Kleen Pool and a regularly applied algicide is a great 'belt and braces' approach to preventing algae. Kleen Pool can also be used at the end of the outdoor swimming season to close/winterise the pool (see pages 42 - 43.)

Kleen Pool Dose Rate Table

	Pool Volume			Dose Rate
	Cubic Metres	Litres	Gallons	
	4.55 m ³	4,545	1,000	200ml
	11.36 m ³	11,364	2,500	500ml
	22.73 m ³	22,727	5,000	1.00Ltr
	45.45 m ³	45,455	10,000	2.25Ltr

Swimmer Copper Free Summertime Algicide

A longlife copper free algicide that is widely compatible with many sanitisers including chlorine, bromine and active oxygen formulated to prevent algae growth during the summer swimming season. One dose will help prevent algae growth for up to three months.

Swimmer Copper-Free Summertime Algicide Dose Rate Table

Pool Volume			Dose Rate
Cubic Metres	Litres	Gallons	
4.55 m ³	4,545	1,000	160ml
11.36 m ³	11,364	2,500	420ml
22.73 m ³	22,727	5,000	840ml
45.45 m ³	45,455	10,000	1.60Ltr





Swimmer Algicide

Dosed into the pool weekly, this non-copper based algicide will prevent a broad spectrum of algae inhabiting your pool.

Swimmer Algicide Dose Rate Table

Pool Volume			Algae Prevention	
Cubic Metres	Litres	Gallons	Initial	Weekly
4.55 m ³	4,545	1,000	50ml	25ml
11.36 m ³	11,364	2,500	125ml	63ml
22.73 m ³	22,727	5,000	250ml	125ml
45.45 m ³	45,455	10,000	500ml	250ml

Swimmer Algae Destroyer

A dual use algicide that can be used to both prevent and cure algae problems. Its concentrated formula means that a little goes a long way, making it economical to use.

Swimmer Algae Destroyer Dose Rate Table

Pool Volume			Algae Prevention Dose Rates		Algae Destruction
Cubic Metres	Litres	Gallons	Initial	Weekly	Dose Rate
4.55 m ³	4,545	1,000	33ml	8ml	66ml
11.36 m ³	11,364	2,500	83ml	20ml	165ml
22.73 m ³	22,727	5,000	165ml	40ml	330ml
45.45 m ³	45,455	10,000	330ml	80ml	660ml





Swimmer Wintertime Algicide

A longlife copper based algicide formulated to prevent algae growth during the late autumn, winter and early spring in outdoor swimming pools. One dose will help prevent algae growth for up to six months.

Swimmer Wintertime Dose Rate Table

	Pool Volume			Dose Rate
	Cubic Metres	Litres	Gallons	
	4.55 m ³	4,545	1,000	400ml
	11.36 m ³	11,364	2,500	1.00Ltr
	22.73 m ³	22,727	5,000	2.00Ltr
	45.45 m ³	45,455	10,000	4.00Ltr

Swimmer Copper Free Wintertime Algicide

A longlife copper free based algicide that is widely compatible with many sanitisers including chlorine, bromine and active oxygen formulated to prevent algae growth during the late autumn, winter and early spring in outdoor swimming pools. One dose will help prevent algae growth for up to six months. Copper Free Wintertime Algicide also contains sequestrants to minimise the likelihood of stains and scale deposits during the closed season.

Swimmer Copper-Free Wintertime Dose Rate Table

Pool Volume			Dose Rate
Cubic Metres	Litres	Gallons	
4.55 m ³	4,545	1,000	400ml
11.36 m ³	11,364	2,500	1.00Ltr
22.73 m ³	22,727	5,000	2.00Ltr
45.45 m ³	45,455	10,000	4.00Ltr



Recovering an Algae Infested Pool

If you are unfortunate enough to suffer from an algae attack then this recovery routine should help:

1. Check the pH; it is not unusual for algae infested pools to have a high pH level - if this is the case lower the pH as chlorine does not work effectively at high pH levels (see chart on page 13.)
2. Top the pool up with water to the top of the skimmer mouth opening with fresh water.
3. Vacuum pool floor with the multiport valve in the waste position. This may be difficult as you might not be able to see the vacuum head, but try and do it systematically remembering to keep an eye on the water level, as by vacuuming to waste the water level in the pool is going to drop – so you will need to work quite quickly.
4. After vacuuming put the multiport valve in the usual filtration position and keep the pump running 24 hours per day until the pool has cleared.
5. Check the sanitiser level. If it is zero it is quite likely that the water will have a chlorine demand which may take a few days to satisfy (see Chlorine Demand on page 20). It is unlikely that you will get rid of the algae infestation until the chlorine demand is satisfied so a few treatments of Swimmer Calcium Hypochlorite, Rapid Shock Granules or 10/11% Sodium Hypochlorite may be required.
6. Apply Swimmer Algae Destroyer as indicated on the product label. This will support the sanitiser and act as another algae killing product to help speed up the pool recovery time.
7. Thoroughly brush the pool floor and walls, again this might be difficult as you may not be able to see the end of the brush, but it is important to disturb the algae and get it into suspension rather than sat on the floor or clinging to the walls.
8. Apply one of the Swimmer clarifiers to assist the filter in the removal of small particles (see page 39 - 41.)



Speciality Treatments for your Pool Water

In addition to the water treatments that have already been covered, there are a few other tasks that periodically need doing and these fall broadly under two headings, Cleaning and Clarifying.

Cleaning

Floating debris such as suntan lotion, cosmetics, blades of grass and insects will collect on the pool walls providing a source of food for bacteria and algae. A weekly clean around the waterline using Swimmer Tidemark Cleaner will easily remove unsightly 'tidemarks'. The regular chemical cleaning of filter media will keep it working effectively and help promote sparkling pool water.

Swimmer Tidemark Cleaner

Specially formulated for use in swimming pools this cleaner is easy to apply using a brush, sponge or cloth. Before applying Tidemark Cleaner ensure the area to be cleaned is wet then dispense a little on to the brush, sponge or cloth and gently apply it to the waterline level for a couple of minutes and then rinse area with plenty of water. Rubber gloves must be worn when using this product.





Swimmer Filter Cleaner

Filter media should be chemically cleaned regularly (see Circulation and Filtration on page 4 - 5). Swimmer Filter Cleaner has been designed to remove the greases and oils that impair the filters efficiency in the removal of particles from pool water. This product can be used to clean filter cartridges and silica sand. For application details please see product label.

Clarifying

Pool water can become cloudy for a number of reasons:

- Incorrect water balance
- Poor or insufficient filtration
- The start or end of an algae infestation
- A build-up of bather wastes

Within the Swimmer range there is a selection of clarifiers that will quickly restore water sparkle, but before using them you should ensure that:

1. The water is correctly balanced - see section on Balancing Your Pool Water.
2. The filtration is running for a minimum of 8 hours per day (24-hours for best results) and that the filter does not require backwashing or chemically cleaning - see section on Circulation & Filtration.
3. The sanitiser level is being maintained within the ideal range - see the Sanitise section.

Once you are satisfied that the above conditions have been met, then the Swimmer clarifiers can help speed up the clarifying process.

Swimmer Floc Tablets

These easy to use tablets are dosed via the skimmer but should only be used in pools with sand filtration systems. When added to the skimmer they dissolve fairly rapidly and move into the filter where they put a layer of coagulant on top of the sand. This layer of coagulant traps small particles, stopping them from passing through the filter and back into the pool.

This action of removing small particles helps create truly sparkling water. The coagulant is removed when the filter is backwashed, so for continued small particle entrapment repeat dose after backwashing.





Swimmer Floc Granules

Floc Granules sink unwanted debris to the pool floor creating clear sparkling water. Once the particles have settled on the pool floor they should be vacuumed to waste. This product should only be used in pools with sand filtration.

Swimmer Floc Granules Dose Rate Table

	Pool Volume			Dose Rate
	Cubic Metres	Litres	Gallons	
	4.55 m ³	4,545	1,000	100g
	11.36 m ³	11,364	2,500	250g
	22.73 m ³	22,727	5,000	500g
	45.45 m ³	45,455	10,000	1.00Kg

Swimmer Liquid Clarifier

A clarifier in liquid form that can be used with all types of filtration systems, cartridge, sand and diatomaceous earth. Liquid Clarifier is added directly to the pool with the filtration system running. Once in the pool it collects small particles and sticks them together making larger particles that are much easier for the filter to remove. Regular small doses of this product are all that are required to keep pool water looking crystal clear.

Swimmer Liquid Clarifier Dose Rate Table

Pool Volume			Dose Rate		Dose Rate	
Cubic Metres	Litres	Gallons	Initial	Weekly	Hazy	Cloudy
4.55 m ³	4,545	1,000	50ml	25ml	50ml	75ml
11.36 m ³	11,364	2,500	125ml	63ml	125ml	188ml
22.73 m ³	22,727	5,000	250ml	125ml	250ml	375ml
45.45 m ³	45,455	10,000	500ml	250ml	500ml	750ml





Preparing your Pool for the Winter

At the end of the outdoor swimming season there are a few things that you need to do to prepare the pool for the winter, to ensure that the pool and pool equipment are protected from damage and that the water stays in reasonable condition. If you are not confident in winterising the pool yourself, then we would recommend that you talk to your Swimmer supplier, who in most cases will be pleased to do it for you.

If you are confident that you can winterise the pool yourself then below is a brief outline of some of the things that need to be done.

1. Remove the solar cover, clean it, pack it up carefully and store it away somewhere that mice can't get at it.
2. Check the pH level and raise it to 7.6 – 7.8. This is slightly higher than the normal range and allows for dilution by rainwater (rainwater tends to be acidic) during the closed season.
3. Lower the water level in the pool so it is approximately 150mm - 200mm below the skimmer mouth opening in the pool.
4. Add a 10mg/l shock dose using Swimmer Calcium Hypochlorite Granules, Rapid Shock Granules or 10/11% Sodium Hypochlorite.
5. Add Swimmer Wintertime Algicide, Swimmer Copper Free Wintertime at the required dose rate (see tables on pages 34 - 35) or Kleen Pool (see table on page 30.)
6. Add a Swimmer Multifunctional Floating Dispenser to the pool, This will keep adding a small amount of chlorine to the pool for about six weeks when used in cold water conditions.
7. Keep the filtration system running after you have added the above products to ensure they are distributed. To do this you will need to close the valve for the skimmer(s) in the plantroom and just draw water via the main drain, otherwise you will suck air into the circulation system.
8. Put bungs into the water outlets at the bottom of the skimmer(s) to stop rainwater going down the pipe.
9. In the plantroom open the valve for the skimmer(s) and run the pump for a few seconds only, this will clear the skimmer pipelines of water.

10. Turn the filtration system off.
11. Drain down the pump, filter and heater as per the manufacturers instructions.
12. Disconnect the pipe-work from the pump, if the plantroom is likely to freeze or get damp during the winter it is good practice to remove the pump to a warm, dry place.
13. Float some items in the pool, old chemical containers are ideal for this but weight them first with some small stones so that they are partially submerged under the water. Doing this will take the pressure off the sides of the pool should ice form on the waters surface.
14. Put an old, weighted chemical container in the skimmer(s), this will help relieve the pressure off the skimmer sides - because although the skimmer is empty at the time of winterising it will fill with rainwater over time.
15. Fit your winter debris cover to keep leaves and other debris out of the pool during the closed period.
16. Every 4 - 6 weeks add a 5mg/l dose of Swimmer Calcium Hypochlorite, Rapid Shock Granules or 10/11% Sodium Hypochlorite and brush pool to help distribute the product as best you can. Also add a new Swimmer Multifunctional Floating Dispenser to the pool.





Pool Care Maintenance Summary Chart

	Daily	Weekly	Monthly	Annually	As Needed
Run Filtration System	Minimum 8 hours per day (24 hours for best results)				
Backwash Filter		✓			✓
Empty Skimmer Basket		✓			✓
Empty Pump Basket		✓			✓
Vacuum Pool		✓			✓
Brush Pool Walls		✓			✓
Skim Leaves from Water Surface		✓			✓
Test Sanitiser and pH Level	✓				
Dose Sanitiser					✓
Top Up Chemical Feeder					✓
Dose pH Adjusters					✓
Oxidise		✓			
Add Algicide		✓			
Clean Waterline		✓			

Safety

General Pool Safety

- Never leave children or non-swimmers unattended in the pool
- Never use the pool during a thunderstorm
- Never use inappropriate electrical equipment in the pool or close to the pools edge
- Never allow diving in shallow water
- Stop people from running near the pools edge
- Don't allow horseplay in or around the pool
- Never allow glass objects in the pool or around the pool area
- Always remove pool covers completely before getting into the pool

General Chemical Safety

- Always read the instruction label on chemical products
- Always adhere to the instructions printed on the product label
- Always handle chemicals in a well ventilated area, preferably outdoors
- Always keep chemicals out of the reach of children
- Always wash hands after handling chemicals
- Always store chemicals in a cool, dry place
- Always put the lids back on chemical containers
- When pre-dissolving products always use a clean container
- Never use chemicals that don't have an instruction label
- Never mix chemicals
- Never dose chemicals when there are bathers in the pool





Swimmer Spa Chemicals

Swimmer Spa Chemicals

Your spa will provide you with your own personal haven of relaxation and therapy; it will be a refuge away from the stresses and strains of everyday life and a place where you can spend quality time with loved ones and friends.

To keep your spa water healthy, clean and inviting it is very important that you treat it correctly and regularly with chemicals that will keep the water balanced, kill and prevent bacteria growth and remove non-filterable wastes.

This guide is produced to help understand spa maintenance and in particular water treatment using chlorine or bromine based sanitisers (disinfectants) and explains the importance of establishing and maintaining the correct chemical levels.

At the back of the guide there is a section on spa and chemical safety. Please read this thoroughly before you begin using or treating your spa, and always read and follow the instructions that are printed on the chemical containers before application.

Thank you for choosing Swimmer for your
spa water treatment products.





The Seven Important Aspects of Spa Maintenance

There are seven important aspects of spa maintenance that are essential in keeping your spa water safe, healthy and inviting. These are:

- Circulation and Filtration
- Testing
- Water balance
- Sanitising
- Oxidising
- Cleaning
- Draining and Refilling

Before covering each of the above important aspects we should look at what you need to do after first filling your spa with fresh water.

Initial Fill with Fresh Water

Before leaving the factory portable spas will have been tested for leaks. This involves filling the spa with water and running it for a while before emptying and packing it ready for shipping.

Although the spa has been emptied there will still be some water left in the pipework that will be there when the spa is delivered to you.

It is possible that this residual of water could have grown harmful bacteria, including Legionella, so it is important that the spa is dosed with a high level of sanitiser immediately after it is first filled with fresh water and before the electric supply to the spa is switched on. The level of sanitiser dosed should be sufficient to achieve a level of 50mg/l for the minimum of an hour (or 20mg/l for a period of two hours) - see table below for guidance of quantities required.

Once the sanitiser has been applied leave the spa for 10 minutes then switch the electric supply on and run all pumps for a period of 15-20 minutes, opening all air control valves. If your spa is fitted with them, operate all diverter valves to ensure that the water flows through all the spa jets and pipework. Finally, if your spa has an air blower fitted switch it on and let it run for a few minutes. After the one or two hour time period has passed you can reduce the sanitiser level to the normal operating levels, see page 60.

Please note: The above also applies if you empty the spa and leave it empty for a period of time before refilling and re-commissioning it.

Spa Volume		Stabilised Chlorine Granules to introduce a level of		Bromine Granules to introduce a level of	
Litres	Gallons	20mg/l	50mg/l	20mg/l	50mg/l
500	110	20g	50g	27g	67g
1,000	220	40g	100g	54g	134g
1,500	330	60g	150g	80g	200g



Circulation & Filtration

The equipment supplied with spas varies from make-to-make but all spas have at least one pump and a filtration system. It is the pump that creates the flow (circulation) of water to and from the spa and built into the circulation will be the filter. As the water circulates through the filter, particles are removed and collected within the filter media. A combination of the removal of particles by the filter and good chemical water treatment is what keeps your spa water clear, clean and healthy.

Please be guided by the instructions within the manufacturer's manual supplied with your spa as to the ideal circulation running times for your particular make; as it is likely that the circulation of your spa will be taken care of automatically by the spa management systems.

Most spas are supplied with a cartridge filter which will contain a cartridge element similar to the picture on the left that removes particles from the water. The cartridge element will also collect oils and greases and over time the collection and retention of debris will begin to impair the filter efficiency and reduce the speed at which the water flows around the circulation system. It is therefore necessary to clean cartridge elements typically every 4 - 6 weeks using Swimmer Cartridge Cleaner (see page 66 for further information.)



Testing your Spa Water

Regularly testing your spa water is an essential part of spa maintenance, as without testing you will have no idea what the chlorine or bromine, pH, total alkalinity and calcium hardness levels are. For the testing of domestic spas, test strips or pooltesters are normally used. It is important that you test your spa water regularly, ideally every day.

Swimmer Insta-Test Strips

There is a choice of two different Insta-Test strips:

- Insta-Test 3 that enable you to test free chlorine or bromine, pH & total alkalinity
- Insta-Test 5 that enable you to test free chlorine or bromine, total chlorine, pH, total alkalinity & calcium hardness.

Although not as accurate as using a test kit, test strips are very quick and easy to use and take the 'chore' out of testing your spa water. Simply take a test strip from the pot, dip it into your spa, swirl it round a few times, hold level (being careful not to shake off the excess water), wait for the prescribed length of time and then compare the colour of the pads with the colours printed on the test strip pot.





Pooltesters

Pooltesters are test kits that use reagent tablets to determine the chlorine, bromine or pH levels. Take the pooltester to the spa and turn it upside down, lower it into the spa water to about an elbows depth and then turn it the correct way up so that it fills up with water. Once full of water put the kit on a level surface and add a Phenol Red tablet to test the pH level and a DPD No.1 tablet to check the free chlorine/bromine level.

For more comprehensive water testing, including total dissolved solids and metals, take a water sample to your Swimmer supplier who will be pleased to assist you.

Balance your Spa Water

Establishing and maintaining the correct water balance is important for a number of reasons:

- Chemical efficiency
- Bather comfort
- Protection of pool and plantroom equipment
- Water quality and appearance

Some people believe that keeping the right pH is all that is needed to achieve the correct water balance; this isn't the case, and although pH is important there are other factors that also need to be considered. In the table below we have illustrated the properties that make up water balance and the ideal levels that should be maintained.

Ideal Spa Water Levels

- | | |
|--------------------------|---------------------|
| • Calcium Hardness | 100 – 200mg/l |
| • Total Alkalinity | 125 – 150mg/l |
| • pH | 7.2 – 7.6 |
| • Total Dissolved Solids | Less than 1,500mg/l |





Calcium Hardness

Calcium hardness (or total hardness) is the measure of how hard or soft the water is. The level will vary depending on where your water supply comes from. For example, in some parts of Scotland the water is very soft and in parts of Kent the water can be very hard. The hardness depends upon the amount of mineral salts (mainly calcium) that are dissolved in the water and the more salts there are the harder the water is.

Problems Associated with Incorrect Calcium Hardness Levels

Low calcium hardness (less than 100mg/l)

- Corrosive water
- Etching of surfaces
- Staining
- Skin & eye irritation
- Foam

High calcium hardness (more than 200mg/l)

- Scale formation
- Filter calcification
- Cloudy water
- Skin & eye irritation
- Reduced sanitiser effectiveness

If the calcium hardness of your spa water is less than 100mg/l then it should be increased using Swimmer Spa Calcium Hardness Increaser, details of dose rates can be found below:

Swimmer Spa Calcium Hardness Increaser Dose Rate Table

Spa Volume		To Increase Calcium Hardness by		
Litres	Gallons	10mg/l	25mg/l	50mg/l
500	110	7g	19g	38g
1,000	220	15g	38g	76g
1,500	330	23g	57g	114g

Swimmer Spa Scale Inhibitor

If the calcium hardness of your spa water is greater than 200mg/l then Swimmer Spa Scale Inhibitor should be used to help prevent scale deposits within the filter, heater, pipework and on spa surfaces.

Swimmer Spa Scale Inhibitor Dose Rate Table

Spa Volume		Dose Rates	
Litres	Gallons	Initial	Weekly
500	110	12ml	7ml
1,000	220	25ml	15ml
1,500	330	38ml	23ml





Total Alkalinity

Total alkalinity is a measurement of the water's ability to resist pH change. If the total alkalinity is low then the pH can fluctuate making it difficult to control and maintain at the ideal level. If the total alkalinity is high then the pH can be difficult to change and will keep rising. A high total alkalinity can also lead to the formation of a bicarbonate scale on spa surfaces, within pipework and support equipment.

If the total alkalinity of your spa water is below 125mg/l it should be increased using Swimmer Spa Alkalinity Increaser, the table below indicates the dosage quantities required:

Swimmer Spa Alkalinity Increaser Dose Rate Table

Spa Volume		To Increase Total Alkalinity by		
Litres	Gallons	10mg/l	25mg/l	50mg/l
500	110	9g	22g	45g
1,000	220	18g	45g	90g
1,500	330	27g	68g	135g

If the total alkalinity of your spa water is above 150mg/l then Swimmer Spa pH Reducer can be used to lower it. When applying pH Reducer to lower total alkalinity levels the product should be pre-dissolved and then 'slug' dosed into one area of the spa.

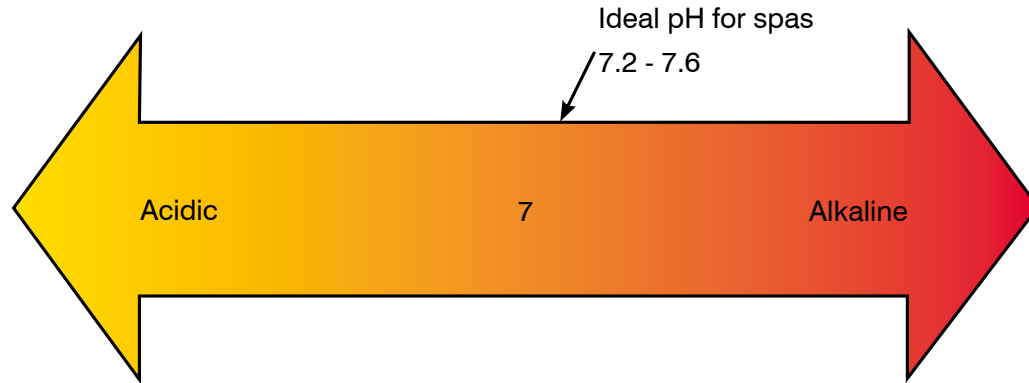
The dose rates are indicated below:

Swimmer Spa pH Reducer Dose Rate Table (for total alkalinity reduction)

Pool Volume		To Reduce Total Alkalinity by		
Litres	Gallons	10mg/l	25mg/l	50mg/l
500	110	12g	30g	60g
1,000	220	24g	60g	120g
1,500	330	36g	90g	180g

pH

pH is a measure of how acidic or how alkaline (not to be confused with total alkalinity) the water is.



As you can see from the above diagram the pH scale is 0 to 14, with 0 being very acidic and 14 very alkaline. pH 7 is neutral and for spas the pH should be maintained between 7.2 and 7.6, this being slightly alkaline protects the spa and support equipment from aggressive, corrosive water and is comfortable for bathers.

Problems Associated with Incorrect pH Levels

pH below 7.2

- Corrosive water
- Etching of surfaces
- Staining
- Skin & eye irritation
- Damage to plantroom equipment

pH above 7.6

- Scale formation
- Filter calcification
- Cloudy water
- Drying to Skin
- Reduced effectiveness of chlorine





Swimmer Spa pH Increaser & Swimmer Spa pH Reducer

If the pH of your spa water is either low or high it should be corrected using Swimmer Spa pH Increaser or Swimmer Spa pH Reducer. The following tables will help you calculate the dose rate to suit your spa:

Swimmer Spa pH Increaser Dose Rate Table

Pool Volume		pH Increaser (to increase pH)	
Litres	Gallons	Dose Rate	
500	110	5g	Re-check pH after a few hours & repeat dose
1,000	220	11g	
1,500	330	17g	

Swimmer Spa pH Reducer Dose Rate Table

Pool Volume		pH Reducer (to lower pH)	
Litres	Gallons	Dose Rate	
500	110	5g	Re-check pH after a few hours & repeat dose
1,000	220	11g	
1,500	330	17g	

Total Dissolved Solids (T.D.S.)

T.D.S. is, as the name suggests, the sum of everything that is dissolved in the water including minerals, chemicals and debris. The maximum recommended T.D.S. level is 1,500mg/l. When the level rises above this it is time to empty and refill the spa.

High T.D.S. levels lead to:

- Corrosion
- Poor chemical efficiency
- Increased chemical consumption
- Dull looking water
- Salty tasting water





Sanitise your Spa Water

The reason that sanitisers are used in spas is to ensure that the water is healthy by preventing and killing bacteria. This is achieved by continuously and consistently maintaining a level of sanitiser (disinfectant) in the water with either chlorine or bromine.

Chlorine

Chlorine is a commonly used chemical to achieve satisfactory bacteriological and chemical purity in spas. It must be present in the 'free' form to kill bacteria and oxidise organic matter derived from bathers. Provided the water is balanced (see pages 53 - 59) chlorine levels of between 3.0 to 5.0mg/l are sufficient to maintain healthy, clean water. A well managed chlorine treated spa will have no odour and levels of chloramines (combined chlorine) of less than 0.5mg/l.

Combined chlorine is created as a result of a reaction between free chlorine and organic matter and is a mixture of Monochloramine, Dichloramine and Nitrogen Trichloride. The latter is mostly produced when the water is not being treated adequately and gives rise to the 'chlorine' odour.

Swimmer makes it easy for you to maintain your sanitiser level by giving you a choice of products to suit your spa situation, preferred dosing method and budget.

Swimmer Spa Stabilised Chlorine Granules

A traditional granular chlorine donor that is popular with many spa owners as it gives dose rate flexibility. These granules are rapid dissolving making pre-dissolving and application easy. The granules have a pH value of about 6.0 - 7.0, which is fairly close to the ideal spa water pH level and so will have little effect on the pH level of your spa water.

Swimmer Spa Stabilised Chlorine Granules Dose Rate Table

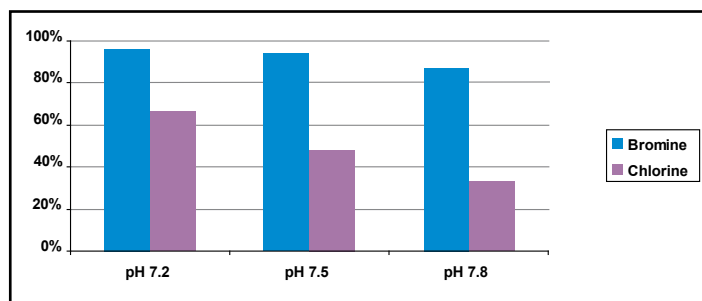
Spa Volume		Stabilised Chlorine Granules To Increase Level by		
Litres	Gallons	1mg/l	2mg/l	3mg/l
500	110	1g	2g	3g
1,000	220	2g	4g	6g
1,500	330	3g	6g	9g

Bromine

Bromine is similar to chlorine in its effectiveness as a sanitiser but there are some important differences that make it an ideal product for using in a spa:

- Bromine should be dosed into the spa via a chemical feeder (brominator), which is usually installed in the plantroom after the filter and heater, or a floating dispenser.
- Bromine, like chlorine, combines with organic compounds to form bromamines, but unlike chloramines, bromamines cause little or no eye, skin and nasal irritation. Also there is not the pungent smell sometimes associated with certain types of chloramines.
- Bromine retains better levels of efficiency over a wider pH band than chlorine (see the chart below) which makes it ideal for spas as the pH can fluctuate a fair amount.

Effects of pH Level on Sanitiser Efficiency



Swimmer Spa Bromine Granules

Swimmer Bromine Granules are a highly effective sanitiser formulated to kill and prevent bacteria and algae growth in a spa. Being a granular product it is easy to vary the dose rate to suit requirements. These granules have a fairly neutral pH so won't upset the water balance.

Swimmer Bromine Granules Dose Rate Table

Spa Volume		Bromine Granules To Increase Level by		
Litres	Gallons	1mg/l	3mg/l	5mg/l
500	110	1g	4g	6g
1,000	220	3g	9g	13g
1,500	330	4g	13g	19g





Swimmer Spa Bromine Tablets

Swimmer Bromine Tablets should be dosed via a chemical feeder (brominator), which is easy and inexpensive to install retrospectively to an existing in ground spa, or floating dispenser. When set up correctly your brominator or floating dispenser will dispense the correct amount of bromine into the spa to maintain the ideal level between 3.0 to 5.0mg/l and all you need to do is top up the feeder with new tablets as and when required. This makes maintaining the sanitiser level in your spa very straightforward. If you are using a floating dispenser remember to remove it from the spa and place it on a non-bleachable surface while people are bathing.

Please note: *Spa Bromine Tablets are designed to maintain bromine levels, so before using them the correct bromine level should be established using Swimmer Bromine Granules.*

Oxidise your Spa Water

Regularly oxidising spa water (ideally weekly) will pay dividends in the prevention of water problems. Bather wastes such as perspiration, urine and cosmetics can build up in spa water providing nutrients for bacteria and algae. A weekly oxidising treatment or shock dose will destroy these wastes and help maintain comfortable bathing conditions.

Swimmer Spa Non-Chlorine Shock Granules

A granular product is ideal for the regular oxidation of spa water as it will destroy organic waste and chloramines without increasing the chlorine level. These granules can be used for chlorine or bromine treated spas. Adding Non-Chlorine Shock to a bromine treated spa will regenerate the bromine ions and will therefore reduce the amount of bromine needed to maintain your spa. Because the bromine is regenerated you should test the bromine level after applying Non-Chlorine Shock to ensure that the level is not too high before spa bathing recommences.

Swimmer Non-Chlorine Shock Granules Dose Rate Table

Spa Volume		Weekly Dose
Litres	Gallons	
500	110	5g
1,000	220	11g
1,500	330	17g





Cleaning

Floating debris such as suntan lotion, cosmetics, grass and insects will collect on the water surface and spa sides providing a source of food for bacteria and algae. A weekly clean around the waterline using Swimmer Surface Cleaner or Swimmer Waterline Cleaning Paste will easily remove unsightly waterline deposits.

The regular chemical cleaning of filter media (usually a cartridge element) will keep the filtration system working efficiently, help promote sparkling spa water that is easier to maintain and reduce chemical consumption.

Swimmer Spa Surface Cleaner

Specially formulated for use in spas, this cleaner is easy to apply using a brush, sponge or cloth. Before applying Surface Cleaner ensure the area to be cleaned is wet then dispense a little on to the brush, sponge or cloth and gently apply it to the waterline. Leave for a couple of minutes and then rinse area with plenty of water. Rubber gloves must be worn when using this product. After draining and before refilling the spa, Surface Cleaner should be used to clean all internal spa surfaces.

Swimmer Spa Waterline Cleaning Paste

A powerful cleaner that effectively removes waterline deposits. Use sparingly as a little goes a long way.





Swimmer Spa Cartridge Cleaner

Filter media (usually a cartridge element) should be chemically cleaned regularly, and Cartridge Cleaner has been designed to remove the greases and oils that impair the filters efficiency in the removal of particles from spa water. This product can be used to clean filter cartridges and silica sand. For application details please see product label. When cleaning a cartridge element - firstly hose the cartridge to remove and lose deposits, then soak it in Cartridge Cleaner solution for at least 8 hours. After soaking the cartridge rinse it thoroughly with fresh water and if possible allow it to dry before returning it to the spa.

Speciality Treatments for your Spa Water

In addition to the water treatments that have already been covered, there are a couple of other products that may be needed from time to time or you can include them within your routine spa management to prevent problems.

Clarifying

Spa water can become cloudy for a number of reasons:

- Incorrect water balance
- Poor or insufficient filtration (filter needs cleaning)
- Low levels of sanitiser
- A build-up of bather wastes

Swimmer Spa Clarifier will quickly restore water sparkle, but before using it you should ensure that:

1. The water is correctly balanced - see section Balance your Spa Water.
2. The circulation and filtration system are operating correctly and the filter is clean.
3. The sanitiser level is being maintained within the ideal range – see the Sanitise section.

Once you are satisfied that the above conditions have been met then the Swimmer Spa Clarifier can help speed up the clarifying process.





Swimmer Spa Clarifier

A clarifier in liquid form that can be used with all types of filtration systems.

Spa Clarifier is added directly to the spa water with the pump running. Once applied it collects small particles and binds them together making larger particles that are much easier for the filter to remove. Regular small doses of this product are all that are required to keep spa water looking crystal clear.

Swimmer Spa Clarifier Dose Rate Table

Spa Volume		Dose Rate	
Litres	Gallons	Initial	Weekly
500	110	25ml	12ml
1,000	220	50ml	25ml
1,500	330	75ml	38ml

Dealing with Foam

From time-to-time it is likely that foam will form on the water surface this is usually caused by remnants of detergents left in bathing costumes after they have been washed. If possible it is always a good idea to encourage spa bathers to shower, with their costumes on, before using the spa as this will not only help in removing detergents but will also remove cosmetics and lotions from the body. If foam does appear on the water surface it can easily be destroyed by using Swimmer Foam Reducer.

Swimmer Spa Foam Reducer

Used to prevent and destroy unsightly foam on the surface of spa water this fast acting product quickly breaks the foam down.

It comes in a liquid form that can be added directly to the spa water.

Swimmer Spa Foam Reducer Dose Rate Table

Spa Volume		Dose Rate	
Litres	Gallons	Initial	Weekly
500	110	50ml	25ml
1,000	220	100ml	50ml
1,500	330	150ml	75ml





Draining & Refilling

Although this is the last subject being covered within this guide it is an important part of any spa management programme.

Over time spa water can become 'stale' as it absorbs minerals, chemicals and other soluble materials that cause the total dissolved solids level (T.D.S.) to increase (see page 59). When the T.D.S. level reaches 1,500mg/l it is time to drain the water out of the spa and refill it with fresh new water. As a broad guide a spa will need draining and refilling every 3 - 4 months.

After draining and before refilling it is a good idea to clean all the spas internal surfaces with Swimmer Spa Surface Cleaner and clean the cartridge element with Swimmer Spa Cartridge Cleaner.

Remember, if the spa is going to be left empty for a period of time before being refilled it should be treated with a high dose of sanitiser before being switched back on (see pages 60 - 62.)

Enjoy your spa!

Safety

General Spa Safety

- Do not allow water temperatures to exceed 40°C (lower for children)
- Never leave children unattended in the spa
- Do not overload the spa
- Never use inappropriate electrical equipment in the spa or close to the spas edge
- Never allow diving or jumping into the spa
- Don't allow horseplay in or around the spa
- Never allow glass objects in the spa
- Do not drink alcoholic beverages before or during spa use
- Always remove cover completely before using the spa

General Chemical Safety

- Always read the instruction label on chemical products
- Always adhere to the instructions printed on the product label
- Always handle chemicals in a well ventilated area, preferably outdoors
- Always keep chemicals out of the reach of children
- Always wash hands after handling chemicals
- Always store chemicals in a cool, dry place
- Always put the lids back on chemical containers
- When pre-dissolving products always use a clean container
- Never use chemicals that don't have an instruction label
- Never mix chemicals
- Never dose chemicals when there are bathers in the spa





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