

Fi-Clor[®]

SPA



Revised
Edition

SPA OWNER'S HANDBOOK

A guide to keeping your
spa water clear and healthy



The Fi-Clor Spa Owner's Handbook provides the basic information you need to enjoy your spa to the full. Following some simple guidelines and using the Fi-Clor Spa range will provide years of satisfaction and pleasure from your spa.

What is a spa?

What it's definitely NOT is a tank you fill up with water and treat as though it was a small swimming pool. It is filled with water but that's where the similarity ends. Water in a spa is maintained at a much higher temperature than in a pool. It contains only a fraction of the water a pool holds, so the potential for pollution per litre of water is much greater. For example, five people using a 750 gallon spa is the equivalent of 200 people using a 30,000 gallon pool.

So do you need to be a chemist to look after your spa?

No, but you will need to read and become familiar with the manufacturer's instructions provided with your spa and gain a little understanding of the chemicals you'll be using. Follow a few simple rules and you can:

- Ensure the water is bacteria free.
- Protect the spa finish.
- Extend the life of spa equipment.





Taking care of your spa water

You need to add chemicals to keep the water free from bugs and bacteria which could live quite happily in your spa. Bacteria needs little encouragement to flourish; a dark warm place is ideal, and where better than in the spa filter or pipework?

Water is the most important part of your spa. Indeed all the equipment

is designed to either hold water, move it, filter it or heat it, so if you take care of the water, it will take care of you and your spa.

The care process can be divided into three parts:

- 1 Starting up your spa
- 2 The circulation / filtration system.
- 3 The chemical treatment regime.

▶ 1. STARTING UP YOUR SPA



When filling your spa for the first time (commissioning) or when refilling after it has been empty for a period, it is strongly recommended that a shock chlorination is carried out on the cold fresh water. **Fi-Clor Superchlorinator-Shock Pot** is an ideal product for this purpose as it is unstabilised and will deliver the maximum effectiveness.



The free available chlorine level should be taken to either 25mg/l (ppm) for a minimum of two hours, or 50mg/l (ppm) for a minimum of one hour. (see instructions on pack label for further details)

While the spa is being chlorinated to these high levels, the water must be allowed to flow to all parts of the system. Where an air blower is fitted, it should not be run for the first 15 minutes to minimise the formation of aerosols (fine spa water mist).

During shock chlorination, the pH should be maintained within the range of 7.2 – 7.6 in order to ensure maximum effectiveness of the disinfection process (see pages 8-10 for further information on this aspect of spa water treatment).

It's important that after the one or two hour shock chlorination period, the spa is drained, thoroughly flushed, refilled with fresh water and run at normal disinfection levels (see section 3: The Chemical Treatment Regime, for further information). If this is not possible for practical reasons, the chlorine level should be reduced using **Fi-Clor Chlorine/Bromine Reducer** or alternatively the spa may be left with the cover off and the chlorine level allowed to fall naturally. The spa should then be drained, thoroughly flushed and refilled with fresh water as above.

The make up of the mains water supply can vary considerably across the country and you may even have a non-mains source such as spring or well water. As a result, different levels of pH, total alkalinity, calcium hardness and mineral content will be found in the water that you fill your spa with. In hard water areas of the UK or if there is a high mineral content, it is strongly recommended that **Fi-Clor Spa Anti-Scale** is added when your spa is initially filled with fresh water and also every time it is topped up or refilled after periodic draining. This should help to minimise scale formation and staining of the spa surfaces.





▶ 2. THE CIRCULATION/FILTRATION SYSTEM

This consists of a circulating pump and filter; the pump moves the water through the system. The filter removes small particles, which if left in the water would turn the water turbid. It's important to follow the manufacturer's instructions as to how long the circulating pump should run. Periodically the filter will require cleaning. The filter will invariably be of the cartridge type which can be cleaned with **Fi-Clor Spa Cartridge Cleaner**. This is essential to remove precipitated minerals and greasy deposits that have been trapped in the filter which if left, will impair the filter's performance and cause the water to become cloudy.



Your spa water should always look clear, bright and inviting. If for any reason it doesn't, it can usually be brought back to life with **Fi-Clor Spa Water Clarifier**. This assists the efficient removal of small suspended particles, which in sufficient quantity will cloud the water.

▶ 3. THE CHEMICAL TREATMENT REGIME - Unwelcome visitors

Your spa has been filled with fresh water straight from the tap. This water is good enough to drink, so why should it require further treatment? The simple answer is that when you get into the spa, you carry with you numerous small particles, including bacteria. Bacteria are so small they're invisible to the naked eye, but that doesn't mean they can be ignored.

Living organisms such as bacteria need, as we do, food and water to survive and flourish. The water is already present; the food is usually in the form of organic material and because you consist mainly of organic matter, each time you climb into the spa you introduce this in the form of skin particles which are covered in bacteria, along with other nutrients. You must therefore treat the water and kill off these bacteria.



Don't underestimate the size of the potential problem. Bacteria multiply rapidly and if left untreated, their numbers could increase to 20 million in just eight hours and 160 million in nine hours! By the time the water starts to look cloudy, there could be many millions of bacteria per five litres of water. So it makes sense to control them in the early stages rather than when the numbers are up in the billions.

It is therefore crucial to treat the water correctly using **Fi-Clor Spa Chlorine Tablets**, **Fi-Clor Spa Bromine Tablets**, **Fi-Clor Spa Chlorine Granules** or **Fi-Clor Spa Active Oxygen**.

Bromine or chlorine sanitise the water, killing any living micro organisms, but they also act as oxidisers; chemically burning out the dead micro-organisms and other organic material present in the water. Alternatively, chlorine-free Active Oxygen does not generate by-products such as chloramines but still kills bacteria effectively. We will consider each of these sanitisers in more detail shortly. Meanwhile remember:

Effective chemical treatment + Effective filtration = Clean, inviting, safe water.

HOW DOES THE BROMINE WORK ?

Fi-Clor Spa Bromine Tablets can only be used in a feeder device or floating dispenser – please refer to the manufacturer's instructions for operational details. Dose the required number of tablets into the feeder and resume circulation. If there is no automatic controller, the level of bromine in the spa can be raised or lowered by changing the



flow rate through the feeder. The bromine tablets dissolve in the spa water and produce hypobromous acid; this is the compound that kills bacteria. It is called "total bromine" and this is what you will be testing for. You need a residual of between 4 - 6 mg/l (ppm), and how you test for this will be dealt with later in the booklet.



Occasionally there may be a build up of unwanted by-products from the bromination process.

These can be easily dealt with using **Fi-Clor Superchlorinator-Shock Pot** or **Fi-Clor Spa Oxy-Brite** which oxidises unwanted by-products and regenerates spent bromine, **Fi-Clor Spa Oxy-Brite** is supplied in easy to use single dose 35g sachets.

An alternative way is to use **Fi-Clor Spa Non-Chlorine Shock** at a rate of 75gms per 4.5m³ (1,000 galls). The addition of this product will also regenerate 'spent' bromine.



HOW DOES THE CHLORINE WORK ?

Although they belong to the same chemical family, there are some differences between chlorine and bromine. When using **Fi-Clor Spa Chlorine Granules or Chlorine Tablets** in your spa they produce hypochlorous acid; this is the active compound that will kill the bacteria and other unwanted pollution introduced into your spa.

For full details of the dose rate for granules and procedure for using tablets, please refer to the individual pack instructions. Maintain the chlorine level at 3 - 5mg/l (ppm). The chlorine tablets are only intended for use with floating dispensers or inbuilt chlorine feeders where the manufacturer's instructions must be followed closely.



As the chlorine kills the bacteria, it can form other compounds called combined chlorine (chloramines). These compounds have no killing power and are in fact a nuisance. They need to be removed by weekly shock dosing the spa with [Fi-Clor Spa Oxy-Brite](#), [Fi-Clor Spa Non-Chlorine Shock](#) or

[Fi-Clor Superchlorinator-Shock Pot](#)



The pH of your spa water is much more important for chlorine than it is for bromine. The pH needs to be kept between 7.2 – 7.6 to ensure optimum conditions for the chlorine to kill unwanted pollution. When necessary you can raise the pH using [Fi-Clor Spa pH Increaser](#) and lower it using [Fi-Clor Spa pH & Alkalinity Reducer](#).

Finally, the chlorine level could be decomposed by sunlight in outdoor spas, but to prevent this there is a stabiliser called cyanuric acid built into [Fi-Clor Spa Chlorine Granules](#) and [Fi-Clor Spa Chlorine Tablets](#).

HOW DOES ACTIVE OXYGEN WORK ?

[Fi-Clor Spa Active Oxygen](#) provides a gentle alternative to chlorine or bromine sanitisers. The two component system uses 20g active oxygen tablets and a liquid activator which is odourless, easy to use and kind to the eyes and skin.



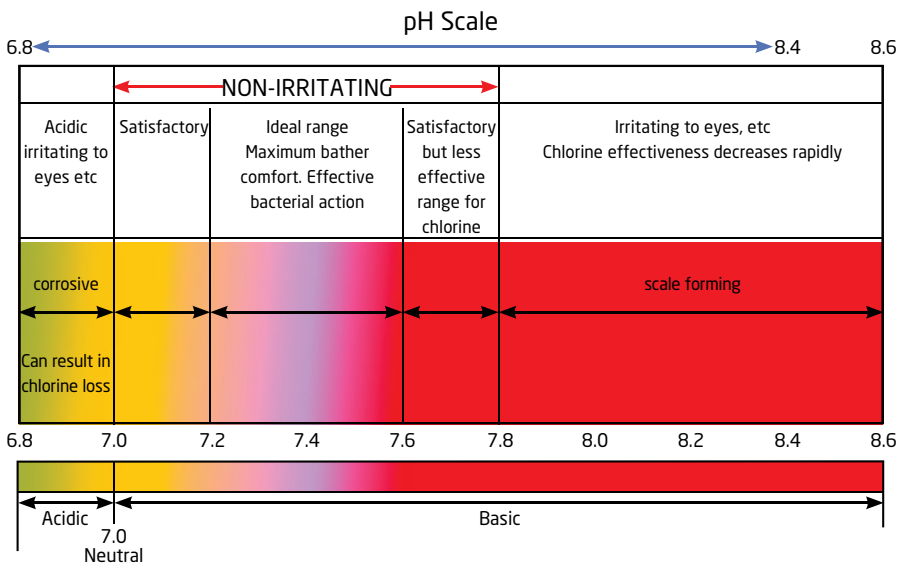
Used in combination, the two components provide non-chlorine oxidation to remove organic waste and biocidal activity to kill harmful bacteria. The result is clear, sparkling spa water that is both safe and comfortable to bathe in.

WHAT ELSE DO YOU NEED TO KEEP AN EYE ON?

For reasons already stated it's advisable to test regularly for pH, and also check from time to time to determine the levels of alkalinity and calcium hardness.

As with chlorine and bromine, all these tests can be carried out by using a single test strip from the pack of 50 supplied with the [Fi-Clor Spa Starter Kit](#) or a test kit that uses tablet reagents.

pH The pH scale reveals how acidic or basic the water is.



The pH needs to be between 7.2 – 7.6. There are several reasons for operating within this band, the most important being the pH of your mucous membranes (eyes, nose, throat) is about 7.4, so the closer you can keep the pH to this, the more comfortable it will be. A high pH will lead to cloudy water and excessive scaling. Should any scaling occur, it can be removed using [Fi-Clor Spa Anti-scale](#). Meanwhile, a low pH will create acidic conditions which may corrode the metal parts of the system.



HOW DO YOU CONTROL THE pH?

If the pH rises above 7.6, reduce it by adding **Fi-Clor Spa pH & Alkalinity Reducer** at a rate of 10gms per m³ (220 gall).

- With the circulation system running, dose directly in several areas around the spa, avoiding the skimmer. Only dose when bathing has ceased.
- Continue filtration and re-test after 15 minutes.
- If necessary repeat the treatment until pH falls within the range 7.2-7.6.



On the other hand, if the pH is below 7.2, add **Fi-Clor Spa pH Increaser** at a rate of 10gms per m³ (220 gall).

- With the circulation system running, dose directly in several areas around the spa, avoiding the skimmer. Only dose when bathing has ceased.
- Continue filtration and re-test after 15 minutes.
- If necessary repeat the treatment until the pH falls within the range 7.2-7.6.



NOTE: Before making any pH adjustments, it is recommended that the total alkalinity is tested and adjusted as necessary (see below).

TOTAL ALKALINITY

The alkalinity in the spa water protects the pH against sudden changes. The ideal level should be between 80 – 160mg/l. If the alkalinity falls below 80mg/l the pH could fluctuate considerably. This could create corrosive water conditions that may cause unnecessary damage to your spa equipment. Also, the water could become uncomfortable for users.

To increase the alkalinity, add **Fi-Clor Spa Alkalinity Increaser** as directed on the label. Should the alkalinity become too high, the pH will be very difficult, if not impossible, to adjust. In the event of high alkalinity, reduce using **Fi-Clor Spa pH & Alkalinity Reducer**.

Temporarily stop the circulation, add 20gms per m³ (220 gall) to the spa water in one area. Immediately restart the circulation. Repeat the procedure as required.



CALCIUM HARDNESS

The level of calcium found in the water used to fill your spa depends on the area where you live. Your Fi-Clor Dealer will probably know the likely calcium hardness of the local mains water. If you have the test strips supplied with the [Fi-Clor Spa Starter Kit](#) you will be able to determine the calcium hardness levels of the mains water or in the spa by reference to the total hardness bar on the strip. The ideal level depends on the type of spa shell you have:

In acrylic spas calcium hardness should be a minimum of 175mg/l (ppm).

In tiled spas the minimum level should be 250mg/l (ppm)

This should provide sufficient calcium to satisfy the water's 'calcium demand'. Calcium hardness can be increased using [Fi-Clor Spa Hardness Increaser](#).

In hard water areas with a high calcium hardness level, [Fi-Clor Spa Anti Scale](#) should be added as per the instructions on the label to prevent scale formation.



WHAT ELSE DO YOU NEED TO DO ?

Temperature

Most modern spas have a built-in temperature gauge but if one is not supplied, invest in a good quality thermometer.

The maximum temperature should be 40°C. Most people find a temperature of 37°C to be most relaxing; temperatures above this tend to feel uncomfortable. The important thing is to set the temperature that feels most comfortable to you. Due to the higher temperature your spa operates at, you may occasionally get a little scale formation, but again this can easily be prevented or removed using [Fi-Clor Spa Anti-scale](#).

Keep your spa/hot tub clean

Just like your bath, grease and body fats can collect at the waterline, which not only looks unsightly but can prove to be a breeding ground for bacteria. It is good practice to clean this off regularly using [Fi-Clor Spa Surface Cleaner](#). This is specially formulated to clean away body fats and grease easily and quickly, and can also be used to clean the spa interior when it is periodically drained before it is refilled with fresh water.



NOTE

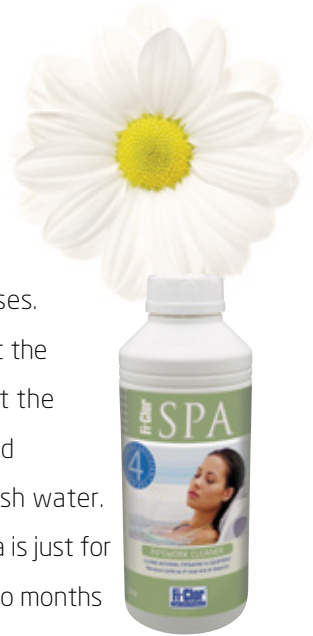


It is essential that you do not use an abrasive cleaner on an acrylic spa / hot tub as this will damage the surface.



Draining your spa

Although the water is constantly being re-circulated, filtered and sanitised, micro-organisms capable of withstanding normal sanitiser levels can survive out of reach in the circulation system. On rare but not unknown occasions, these can give rise to serious infective illnesses. For this reason, it is a good idea to periodically shock treat the water, and use **Fi-Clor Spa Pipework Cleaner** to clean out the waste that has accumulated in the internal pipework and equipment, before draining and refilling the spa with fresh water. The frequency of draining will depend on usage. If your spa is just for family use, it should ideally be drained and refilled every two months and at least every three months.



To help combat anything that might be harmful to health, shock the spa water prior to draining using **Fi-Clor Superchlorinator-Shock Pot**. In this context, shock dosing means raising the chlorine level well beyond normal concentrations – to 50mg/l (ppm) for one hour, or 25mg/l (ppm) for 2 hours. See the instructions on the pack for more details.



Keep the circulation running throughout, then drain the water and refill with fresh. If using a hosepipe, ensure it is clean to avoid introducing any dirt or bacteria into your spa during the filling operation. Make sure the pH and sanitiser levels are within recommended limits before operating the jets and using the spa again.

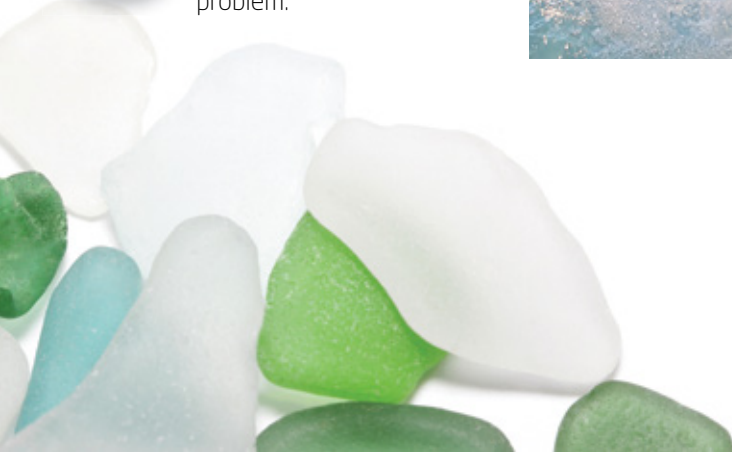
NOTES

We strongly recommend you also shock dose the water on first commissioning the spa as outlined earlier.

Removing foam

The water in your spa is circulated very quickly; air is also introduced regularly and, together with the build up of body oils, foam can be created on the water's surface. While this will cause little harm it's not

attractive and needs to be removed. **Fi-Clor Spa Anti-Foam** is specially designed to remove this unsightly foam, and if you use it on a weekly basis, this will ensure that foam is not a problem.



TESTING YOUR SPA WATER

In general you only need to carry out two simple tests; pH and O₂. These tests may be simple, but that doesn't mean care should not be taken when carrying them out. The pH and sanitiser values should be checked daily, and adjusted if necessary before use. There are two other tests that could affect your spa water quality; alkalinity and calcium hardness. These can be tested accurately by your Recommended Fi-Clor Dealer on a monthly basis or when a problem arises. (The test strips provided with the [Fi-Clor Spa Starter Kits](#) will give you a rough idea whether the alkalinity and calcium hardness need attention).



If you're using a test kit or test strips, here are a few guidelines to help you get accurate results:

- Keep your test kit clean.
- Do not purchase more test strips or test tablets than are needed for the season. If you have an indoor spa which is used throughout the year, keep no more than three months supply.
- Do not touch the test tablets or reagent pads on the test strips when taking tests.
- Make sure there is no colour impairment to your eyesight or to the eyesight of anyone else likely to test your spa.

TEST KITS

When investing in a test kit, it's important to choose the correct one for the sanitiser you're using. Test kits are clearly marked according to whether they are to be used with bromine or chlorine. If in any doubt, ask your Approved Fi-Clor Dealer who will be happy to advise you.

- In order to obtain accurate results, it is essential to closely follow the test kit manufacturer's instructions.
- Note the results and if necessary add adjustment chemicals as required (see previous sections).
- Should you obtain results that you don't understand, take a sample of your spa water to your recommended Fi-Clor Dealer who will test it and offer advice.

SAFETY

Handled correctly and with respect, your spa chemicals are perfectly safe. However if you misuse them or fail to follow instructions, the consequences can be potentially serious, so there are a few rules that need to be followed.

- Keep spa chemicals in their original containers.
- Keep spa chemical containers sealed when not in use.
- Keep all chemicals locked up and out of the reach of children and pets.
- Read all labels to ensure you understand what the chemical is, how it is to be used and what it will do.
- Never mix chemicals together.
- When mixing chemicals with water **always** add chemicals to water **never** water to chemicals.
- Store all your Fi-Clor Spa chemicals in a secure, cool, dry place.
- Never store your Fi-Clor Spa chemicals in direct sunlight.
- Always handle your Fi-Clor Spa chemicals with care.
- Always measure your spa chemicals accurately.
- Should you spill any spa chemicals, clean up the spill immediately. If they are in solid form, use a clean dustpan and brush and dispose of them by adding small amounts at a time to the spa. Do not put chemicals back into their original container; do not use a domestic vacuum cleaner. If in any doubt contact your local Fi-Clor Dealer who will be happy to advise.
- Never inhale chemical fumes.
- If any chemical comes into contact with your skin, wash off immediately with copious amounts of fresh water.
- If any chemicals come into contact with your eyes, nose or mouth, wash off with fresh water and seek medical attention immediately.



TROUBLESHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE	SOLUTION
Eye and/or skin irritation	A high level of organic pollution	Shock dose with Fi-Clor Spa Non-Chlorine Shock or Fi-Clor Oxy-Brite® Spa
	The pH is outside acceptable range	pH over 7.6 - reduce with Fi-Clor Spa pH & Alkalinity Reducer
		pH below 7.2 - raise with Fi-Clor Spa pH Increaser
	Sensitivity to chlorine/bromine	Sanitise your spa with the Fi-Clor Spa Active Oxygen system consisting of tablets and liquid - a gentle alternative to chlorine or bromine.
Foaming	Build up of contaminants – body oils and/or cosmetics	Treat with Fi-Clor Spa Anti-Foam Shock dose regularly with Fi-Clor Oxy-Brite® Spa
Smells	Build up of organic pollution	Shock dose with Fi-Clor Spa Non-Chlorine Shock or Fi-Clor Oxy-Brite® Spa
Staining on the shell and coloured water	High concentration of metals in the water	Treat with Fi-Clor Spa Anti-Scale or take a sample to your local approved Fi-Clor dealer for analysis
Grease along the waterline	Dirt and sunscreen in the water	Clean with Fi-Clor Spa Surface Cleaner
Cloudy water	Low sanitiser level	Test regularly and maintain between 3 - 5mg/l (Chlorine) / 4 - 6mg/l (Bromine)
	Ineffective filtration	Check cartridge filter and either clean using Fi-Clor Spa Cartridge Cleaner or replace. If installed, backwash the sand filter regularly.
	Build up of dissolved solids	Treat with Fi-Clor Spa Water Clarifier to aid filtration Drain spa and refill with fresh water every 2 months.
Excessive scaling	Water out of balance	Take a sample to your local approved Fi-Clor Dealer for analysis. Use Fi-Clor Spa Anti-Scale when refilling

MY SPA - QUICK SPA CARE GUIDE

Spa Water Capacity

(1 cubic metre = 1,000 litres)

Rectangular spa: - Length (m) x Width (m) x Average depth (m) = Volume of water in cubic metres.

Round spa: - Radius (m) x Radius (m) x 3.142 x Average depth (m) = Volume of water in cubic metres.

My spa capacity = litres

Start up

DOSE

If necessary clean the entire spa surface with **Fi-Clor Spa Surface Cleaner** prior to filling.

Add **Fi-Clor Superchlorinator Shock Pot** to the freshly filled spa following the pack instructions. During this process, maintain the pH at 7.2 – 7.6 using **Fi-Clor Spa pH & Alkalinity Reducer** or **Fi-Clor Spa pH Increaser**.

After 1 – 2 hours, drain and refill the spa. If this is not possible, reduce the chlorine level using **Fi-Clor Chlorine/Bromine Reducer**.

In hard water areas or where there is a high metals content, use **Fi-Clor Spa Anti-Scale**.

Test and balance the spa water using the procedure on [pages 9 - 10](#).

Add the **Fi-Clor Spa sanitiser** of choice. [See pages 4 - 7](#).
Test the water once more using test strips to ensure it is still in balance.

Daily

Test the water and adjust the pH levels as needed using **Fi-Clor Spa pH & Alkalinity Reducer** or **Fi-Clor Spa pH Increaser**.

Test the water and adjust the sanitiser as needed using the **Fi-Clor Spa sanitiser** of choice.

Weekly

To maintain spa water clarity use **Fi-Clor Spa Water Clarifier** as needed.

To minimise calcium build up, particularly in hard water areas or possible staining caused by metals, add **Fi-Clor Spa Anti-Scale** as needed.

Shock treat the water by adding **Fi-Clor Superchlorinator Shock Pot** or **Fi-Clor Spa Oxy-Brite**, especially following heavy bathing loads.

Carry out a visual inspection of the filter cartridge and clean if necessary, using **Fi-Clor Spa Cartridge Cleaner**.

MY SPA - QUICK SPA CARE GUIDE

Monthly

DOSE

Remove the spa filter cartridge and clean using **Fi-Clor Spa Cartridge Cleaner**.

Clean the spa surface above the water line using **Fi-Clor Spa Surface Cleaner**.

Test the water and adjust the alkalinity if needed using **Fi-Clor Spa pH & Alkalinity Reducer** or **Fi-Clor Spa Alkalinity Increaser**.

Test the water and adjust the calcium if needed using **Fi-Clor Spa Hardness Increaser**.

Every 2 Months or Quarterly

Clean out the waste that has accumulated in the internal pipework and equipment using **Fi-Clor Spa Pipework Cleaner** (see instructions).

Add **Fi-Clor Superchlorinator Shock Pot**, allow water to circulate for the required period (see instructions) and completely drain the spa.

Clean the shell of the spa using **Fi-Clor Spa Surface Cleaner**, rinse thoroughly and drain.

Deep clean the filter cartridge using **Fi-Clor Spa Cartridge Cleaner**. More frequent filter cartridge cleaning may be required depending on usage.

Refill the spa and follow start up procedure for testing and making chemical additions.

Please note that this programme is for a residential spa with average use and is not designed for public, commercial or semi-public spas. Please refer to separate publications for guidelines issued on the operation of commercial spas. If your spa is used more than 3 times a week, you should test the water and make chemical additions more often than suggested.

The information in this handbook is believed to be correct. It is given without warranty or engagement and no licence or immunity under any patent is either granted or implied.

With thanks to Sundance Spas for use of their photographs.

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