

SPA KIT GUIDE – Chlorine Granules or Chlorine Tablets

This guide provides instructions for sanitising spa baths/hot tubs that are usually permanently filled with water.

How much water is there in the spa bath?

Hopefully you will know this already from the manufacturer's description. If not

Safety and Handling of Chemicals

Spa baths that have been left standing unused for long periods are a potential source of Legionnaires' disease if the sanitiser has been allowed to fall. This is also true of occasionally used showroom displays. In this case, we recommend carrying out shock dosing to kill any pathogenic organisms which may have multiplied in pipe work, jets, pumps and the water itself before anyone can inhale any droplets of water near the spa surface when the pumps are run.

- Do not use with other materials unless the instructions say you can. With pool & spa chemicals, this is particularly true with Chlorine, Bromine and Oxygen Sanitisers.
- Do not mix different chemicals together. They are only intended to be mixed at very low concentration when they are in the pool.
- Unless supplied in tablet form, always pre-dissolve chemicals in a clean polythene container
- Wash container thoroughly between different chemicals and after use.
- Close the chemical container after use.
- Do not eat whilst handling chemicals.
- Store chemicals in a cool dry place well away from children and animals.
- Do not smoke whilst handling chemicals.
- Handle chemicals in a well ventilated area, especially Chlorine and Bromine products.
- Do not allow powders to become damp.
- Add chemicals to water rather than the reverse.
- Do not add chemicals to the spa bath whilst there are people in the water.
- Consult the local authority before disposing of surplus chemicals. They may have a special procedure for this.
- Do not discharge large quantities of water containing chemicals without the consent of the disposal authority. In the UK this will usually be your water company
- Thoroughly empty any chemical containers and rinse them in the spa before disposal.
- Carefully clean up any spillage.

What does each kit contain?

1kg Pure-Spa Stabilised Chlorine (Dichlor) Granules for routine chlorination
OR **1.2kg -Pure-Spa Trichlor** tablets for routine chlorination

500g Pure-Spa Granular Shock (Calcium Hypochlorite) for "shock" chlorination

1.5kg Pure-Spa pH Decrease

1kg Pure-Spa pH Increase

1lt Pure-Spa Spa Antifoam

50 x Insta Test Strips 3 way - Measures Free Chlorine 0-10 ppm, Bromine 0-20 ppm, Total Alkalinity 0-240 ppm, and pH 6.2-9.0.

What does each item do?

Dichlor (Pure-Spa Stabilised Chlorine Granules)

In order to keep the water sanitised thereby preventing bacteria multiplying, it is necessary to keep about 2-3 parts per million (or milligrams per litre) of free chlorine in the water. These units are abbreviated to p.p.m. or mg/l. Chlorine will also help prevent the growth of algae. This is especially important if the spa is exposed to sunlight.

Dichlor is self stabilised to resist chlorine loss in strong sunlight.

When the spa is first filled add sufficient Dichlor to bring the free chlorine to 2.5 p.p.m.

For each 1000 litres of your spa's volume, you need 4.5gm of Dichlor for example:

As chlorine is lost, regular testing will show a need to top up regularly. For each 1p.p.m. of chlorine you need to replace, add 2gm of Dichlor for each 1000 litres of water volume.

Trichlor: (Pure-Spa Chlorine Tablets)

This is an alternative method of chlorinating the water for the same reasons as described in Dichlor above. The advantage is that the tablets are always slowly dissolving in the water and so the sanitiser level is being permanently topped up, even in your absence. This method does require a certain amount of trial and error with the dispensing conditions before a satisfactory routine is established.

Trichlor is introduced in some part of the water circulation system where a few tablets can be permanently washed over by the water flow. Alternatively a simple erosion feeder can be used in which the tablets are put into a floating container which has an adjustable louvre to regulate water flow through it. This should be removed or anchored when the spa is in use.

A Floating Spa Dispenser is available from our website.

Calcium Hypochlorite (Pure-Spa Spa Granular Shock)

As the spa is used, bathers introduce contaminants. Free chlorine combines with amine soiling to give chloramines. These build up to eventually give irritation and "chlorine odour" complaints.

These are destroyed by shock chlorination. In a lightly used domestic spa it is sufficient to do this every month. Shock chlorination consists of raising the free chlorine by 10p.p.m.

Calcium Hypochlorite is used because it is a strong oxidising agent and because it is unstabilised so the excess chlorine will be lost more rapidly.

Do not use the pool until the free chlorine has fallen below 5p.p.m.

For general information see <http://www.calcium-hypochlorite.co.uk>

Algae are microscopic single cell plants. These are borne on the wind or carried into the water by bathers. Once there, they multiply freely so that in a few days the water is green and the pool liner is slimy looking. Shock chlorination kills algae.

pH Decrease and pH Increase:

pH is a logarithmic scale indicating the degree of alkalinity or acidity of a solution.

The scale is between 0 and 14. 7 is the neutral point (the measure of pure water).

Less than 7 indicates acidity. More than 7 indicates alkalinity.

Each unit of 1 indicates a change of ten times. pH is most important to the quality of spa water. The ideal point is close to the neutral position of 7 but the following should be considered.

If the pH is too low then corrosion of pool surfaces and equipment may occur and it may be uncomfortable for bathers. If it is too high then the production of hypochlorous acid will be adversely affected and so sanitisation will be reduced. If it rises above 8 then Calcium Carbonate may be precipitated and the water may become cloudy which is dangerous, unsightly and scale problems may occur.

What is the ideal pH?

The compromise of all the factors is to control the water between pH 7.2 and 7.6.

There is no easy calculation for how much pH Decrease or pH Increase to add. In spa baths, very small quantities will be required. Use 5-10gm for each 1000litres of water until you get a feel for what you are doing. It is better to only move the pH in one direction rather than overdo it and have to bring it back again.

Test Papers or Test Kit:

It is important to test your pool water regularly.

Your kit contains Insta test papers. If you would prefer a Pooltester Chlorine test kit then these are available from our website. www.pure-spa.co.uk or www.hydrospares.co.uk

To use the test papers, dip one in the water for approx 5 seconds and remove from the water.

Shake off surplus water and after 15 seconds, compare the colours on the strip with the scales on the bottle. (Make sure you hold the paper at the right end!)

Note the readings.

Optionally, not included in the kit:

To use the Pooltester Chlorine test kit the complete test method, which should be carried out daily when the pool is in use, is as follows:

Do not sample the water with anything breakable especially glass

Remove the cap and rinse out the testing cell with the water to be tested.

Fill the cells with the sample water directly from the pool.

Place a rapid dissolving DPD1 tablet in the Chlorine test cell. Place other tablets such as Phenol Red for pH, in the other cell(s) as appropriate.

Replace the cap and shake to dissolve the tablets.

Hold the cell up to the light, ideally a north natural light. Avoid greenish fluorescent lights, and evening light which has a red cast to it.

Within 15 seconds read the values indicated by the coloured scales.

Make the necessary chemical adjustments to the water and retest.

Optionally, not included in the kit:

Weekly, or more frequently if the pool has had heavy use, after testing the free chlorine add a DPD3 tablet to the cell and test again for total chlorine.

Note this value and subtract the free chlorine (DPD1 test) value. The difference is the combined chlorine value.

Note: If the colour "flashes" pink and then disappears, it is probably a sign that the water is heavily chlorinated, rather than has no chlorine. This is because the chlorine is bleaching the colour. This happens typically when shock dosing above 10 parts per million. If you suspect this to be the case, dilute the sample exactly in half using unchlorinated water.

If you then get a reading, multiply it by 2 to get the true value.

For further information see <http://www.dpd-tablet.co.uk> and <http://www.phenol-red-tablet.co.uk>

How often should you test?

Chlorine – daily

pH – weekly and after shock chlorination

Total Alkalinity – occasionally

With test papers, of course, you have to test everything at once.

This is one advantage of the Pooltester kit, it can be used for individual tests. The other advantage is greater accuracy.

What is the Total Alkalinity Test for?

This is a measure of all the alkaline materials in the spa water. In the pH range found in spa waters, the alkalinity is likely to be present in the form of Sodium Bicarbonate. At the correct level, the pH will not alter rapidly as the water is said to be buffered. If the total alkalinity is below 80p.p.m. then the water will be insufficiently buffered and if it is above 200p.p.m it will be excessively buffered. In either case the effect of the addition of chemicals will be difficult to control. If your water is outside this range, and it is causing you a problem, then please contact us for advice.

Further Information

Foam

Because of the turbulence in spa baths, the introduction of chemical materials can cause foam. The main culprits in this respect are: Spa Fragrances. Residual detergent in swimming costumes. Residual hair shampoo, conditioner and sun lotion.

The addition of **Spa Antifoam** will reduce the foam and should be added initially at 100ml per 1000litres of water with a regular 50ml/1000litre dose as required.

Cloudy water

In addition to general soiling, water can become cloudy either through hard water salts coming out of solution (usually because the pH has become too high) or the presence of dead algae after shock treatment. Sometimes the filtration system cannot cope to remove these particles because they are too fine and pass through the cartridge. In this case the addition of a **Pool Water Flocculant** can help by making the particles clump together and so become more easily filterable. Pool Water Flocculant is available in 1 or 5 litre bottles from our website.

Filter Cleaning

It is essential to regularly clean the filter cartridge. This should be at least every water change, or more frequently if heavily used. We suggest you get a spare and soak the used one in a 5% solution of Pure-Spa Filter Cleaner liquid for several hours.

Follow this with thorough rinsing. This will help keep it free of dirt and grease and sanitise it.

Pure-Spa Spa Filter Cleaner liquid is available in 1 litre bottles from our website. Alternatively we have 2 powdered filter cleaner products available Pure-Spa Filter Cleaner Powder and Filter Cleaner MAX which contains an added detergent.

Algae

If the spa bath is outdoors, algae may multiply in the water. In the UK spa baths are usually indoors or under cover so algae are not often a problem. If your water turns green, the best option is to drain and refill. If algae are a problem between regular refills, we recommend the addition of Pure-Spa Hiklear algicide to the water when refilling.

Add 50 ml of Pure-Spa Hiklear for each 1000 litres of water in the pool. Add a few small doses between water changes. Do not add too much however as this may cause staining of plastic surfaces, costumes or even hair. If the water has already got algae in it, then shock chlorine treatment is necessary before adding the Pure-Spa Hiklear.

See Calcium Hypochlorite.

For further information see <http://www.algicide.co.uk>.

Pure-Spa Hiklear is available in 1 or 5 litre bottles from our website.

Water changes

The build up of contaminants in a spa bath can be quite high as the water volume is very small compared to swimming pools. Also, in warm water, the growth of bacteria and algae will be

encouraged. Because of this we recommend changing the water every 4 to 6 weeks for average domestic use. In heavily used and commercial spas this should be more frequent.

Scum line

Because there are many contaminants introduced into the water, it is inevitable that some will form a “tidemark” around the spa on the waterline. The ideal time to clean this is when the water is changed, but it can be cleaned by lowering the water to below the mark and using **Pure-Spa Spaline**. This is a gel material which can be wiped over the soiling to soften it and then wipe off without too much cleaner or soiling falling into the water

Pure-Spa Spaline is available for our website in 750gm jars.

What else you can do to keep the water in good condition?

Encourage users to have a shower before using the spa bath.

Cover the bath when not in use. This will prevent windblown contamination. Also algae will be discouraged, as they do not multiply in the dark.

Do not allow lawn fertiliser to enter the water. This really makes algae grow!

If your spa bath is heavily used, it is possible to test for Total Chlorine with DPD3 tablets. See test kit instructions above. If the total chlorine is 1mg/l greater than the free chlorine (DPD1 figure) then shock treatment or a water change is recommended.

When can you use the spa after chemical additions?

Do not make additions when there are people in the water.

Predissolve or predilute the chemicals and distribute them around the water surface.

This is especially important with Dichlor and Calcium Hypochlorite. Undissolved particles could bleach or damage plastic surfaces or cause irritation to anyone standing on them on the bottom.

Generally you can use the water again half an hour after Dichlor, pH Decrease or pH Increase additions and it is obvious that they are well dispersed. Run the pump whilst making additions to help distribution.

After shock treating with Calcium Hypochlorite, do not go in the water again until testing shows the free chlorine level has fallen below 5p.p.m. This may be after several hours of bright sunlight.