Fact Sheet

Private spa pools – a maintenance guide for owners

The most important factor in spa pool care is to always keep the water clean and disinfected through the correct use of pool chemicals and good management of the disinfection, filtration, and recirculation systems.

A well-maintained spa pool can provide many hours of enjoyment, but if not properly looked after, it can become a breeding ground for harmful bacteria and other microorganisms which may cause serious illness.

What is a private spa pool?

A private spa pool is one that is available only for the use of the owner or occupier and invited guests in a private home.

Private spa pools do not include communal spa pools in flats, units, retirement villages, and the like, that are under the care and control of a corporate body.

Spa baths are not discussed in this guide as they are emptied after each use like a conventional bath.

The most important responsibility of owners and operators of private spa pools is to always keep the water clean and disinfected.

Why is spa pool water quality important?

Warm water provides ideal conditions for the growth of microorganisms. If a spa pool is not kept clean and properly disinfected, the water may become contaminated with bacteria or other microorganisms.

Contact with contaminated spa pool water or aerosols (airborne water droplets) can lead to:

> Skin, ear, and eye infections.
> gastro-intestinal infections (stomach upset).
> serious potentially fatal respiratory infections such as Legionnaires' disease.

Newborn babies, the elderly and immunocompromised individuals are particularly susceptible to infection from microorganisms found in contaminated spa pool water.

Keeping spa pool water safe

Proper disinfection and filtration of spa pool water kills harmful micro-organisms, removes body fats, and oils, and ensures the water is clean and safe.

Water temperature and other factors affect disinfection and should be adjusted to recommended values.

Spa pool water should be tested prior to use and at least three times per week using a reliable pool water test kit. At a minimum, each test should include a measure of disinfectant concentration, pH, and alkalinity. Temperature should be tested regularly to ensure the best operating conditions for the type of disinfectant used in the spa pool.

It is very important that the pump lint-pot and filter are cleaned regularly to ensure they do not become a source of contamination.

Water used to backwash (rinse) the filter must always be disposed to sewer. In unsewered areas, refer to the SA Environment Protection Authority's information sheet, ['Disposal of Swimming Pool Backwash Water'](#).

Outdoor spas should be fitted with covers to prevent leaves, dirt, pollen and insects entering the water.

Disinfection agents

Commercially available disinfectants suitable for private spa pools should be used. Chlorine and bromine are the most common. Other methods include ozone, ultraviolet (UV) irradiation and ionising systems.

Ozone, UV, and ionising systems require the addition of a small amount of chlorine or another oxidising agent to maintain a residual disinfection activity in the water.

Ideally, disinfection systems should use automatic dosing, although manual dosing is commonly used for private spa pools. When using manual dosing, it is important to check the pump and filter system daily to ensure they are clean and working correctly.

When a spa pool is not in use, a device such as a floating immersion dispenser should be used to always maintain residual disinfectant in the pool water.

If a spa pool is constantly used it may become heavily contaminated and require 'shock dosing' to bring it back to the correct operating conditions (see next column).

Disinfectant concentrations

Chlorine disinfection:

> Not less than 2 mg/L and up to 4 mg/L free residual chlorine while the pool is in use. The ideal concentration is 3 mg/L.

Free residual chlorine is chlorine left over after combining with organic matter in the spa pool. This residual chlorine can effectively kill bacteria.

Bromine disinfection:

> Not less than 4 mg/L and up to 8 mg/L bromine concentration should be maintained while a spa pool is in use. The ideal level is 6 mg/L.

Other disinfection agents

Consult with the supplier of the disinfection agent for details.

Shock-dosing

Spa pools should be shock-dosed at least weekly, and more frequently if the spa pool is in constant use. To do this using chlorine:

> Add a sufficient quantity of chlorine to the water to achieve 10 mg/L free residual chlorine. For example, add 200 mL of liquid sodium hypochlorite (12.5%available chlorine) or 30 g of granular calcium hypochlorite per 1000 litres of water.

> Maintain 10mg/L free residual chlorine for at least one hour.

> Operate the pump and filter at all times during shock dosing.

Other products may be available for this purpose. Consult with your spa pool chemical supplier.

Do not use the spa pool until residual free chlorine falls to 4mg/L.

pH

Spa pool water must be maintained within the following pH ranges for the disinfectant to work efficiently:

> for chlorine: 7.2 to 7.6

> for bromine: 7.2 to 8.0

Total alkalinity

Total alkalinity prevents cloudy water, scale formation, corrosion of metals and makes the water comfortable for users. To adjust, add sodium bicarbonate as advised by a spa pool chemical supplier. Total alkalinity should be checked at least weekly to ensure it is maintained within the following concentration ranges:

> for chlorine disinfection: 60 mg/L to 200 mg/L.

> for bromine disinfection: 150 mg/L to 200 mg/L.

Handling chemicals safely

When adding chemicals to pool water, first add the chemicals to water in a bucket; then add the mixture to the pool water with

the pump and filter operating. Add small quantities at a time. Wait 10 to 15 minutes before testing.

Pool chemicals are potentially toxic and should be stored, used, and handled according to the manufacturer's instructions.

Spa water temperature

Check the temperature regularly and maintain it at a suitable level between 35°C and 37°C.

Water temperature should not exceed 40°C as it will cause discomfort for users and may even cause increased body temperature (hyperthermia).

If a spa pool is continuously heated it will require continuous disinfection.

When should I change the water?

10% to 15% of the water should be replaced each week.

It may be necessary to replace all the spa pool water occasionally if:

> the spa pool is used often or by many people and the disinfectant cannot be adjusted to the recommended levels.
> algae start to grow on the pool surfaces, or the water becomes cloudy and cannot be easily cleared.

If algae are present, ensure the disinfectant and pH levels are in accordance with the recommended ranges. Shock-dosing and manual removal may necessary.

If this is not successful it may be necessary to empty the spa and scrub the inside surfaces a chlorine solution, followed by rinsing and refilling.

If algae persist the addition of an algaecide may be required. A pool chemical supplier should be consulted.

When NOT to use the spa pool

Spa pools should not be used:

> if the disinfectant level and/or pH is not within the recommended range, or the pool water is dirty or cloudy.
> if the filtration unit or recirculation pump is not operating properly.
> by persons who are under the influence of alcohol or taking drugs that cause drowsiness.
> by persons with open wounds or who feel unwell or are pregnant.
> by persons who are immunocompromised.

Pool safety

For health and safety:

> always keep your head above water.
> spend no longer than 20 minutes in a spa pool at any one time.
> always supervise children using a spa pool.
> discourage nose blowing, spitting, or urinating in a spa pool.

Further information

Fencing and safety:
www.sa.gov.au/swimmingpools

For more information

Health Protection Programs
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