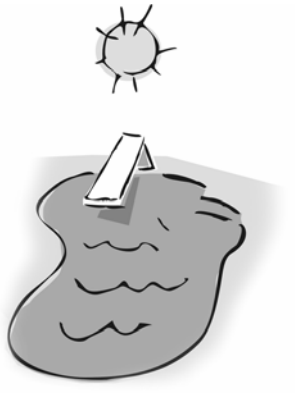

Domestic swimming pools: Water care

Poorly maintained swimming pools can create some serious health risks for users.

Humans, animals or the environment can contaminate pools with infectious organisms. In most cases these organisms cause mild illness, but some can be deadly.

Why keep your pool clean?

Pools that are poorly maintained can create potential health risks for users. Harmful bacteria and viruses must be killed quickly to prevent infection, and contaminants such as sunscreen, skin and hair should be treated or removed. Algae must also be controlled or your pool can become an ugly green mess.

Contact with water contaminated with micro-organisms may lead to infections of the skin, ears, eyes or stomach. Dangerous organisms can be introduced from humans, animals and birds or the environment, with most causing mild disease; but some can be fatal.

Always pay attention to pool safety by supervising children, fencing the pool and taking due care with sun protection and electrical safety. Make sure you are trained in resuscitation techniques.

Water supply

Use clean water from your domestic water supply to fill your pool. However, this water may have unsuitable pH or mineral levels that may interfere with disinfection and damage your pool and equipment with stains, scale and corrosion. Pool water will need to be chemically tested.

Seek advice from your local Council Environmental Health Officer if other water sources are to be used.

Water treatment

Because water remains in your pool for long periods of time, it must be treated to stay clean and safe. Proper disinfection and filtration of the pool water kills harmful micro-organisms and removes body fats, oils, soil and other contaminants.

Water filtration

Pool water must be circulated and filtered. If your filter doesn't operate properly, neither will the products you add to keep the pool disinfected and clean.

Common filter types include sand filters, diatomaceous earth and cartridge filters.

The filter system should be able to completely filter all of the water in the pool within 6 to 8 hours. Ensure the filtration system is operating when the pool is being used and for at least 1 hour afterwards.

Filters should be cleaned regularly to ensure they are operating at maximum efficiency.

If a sand or diatomaceous earth filter is used, the water used to backwash (rinse) the filter must be disposed of into the sewer, or into separate underground soakage if in an unsewered area.

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Testing

It is important to test the water before use and at least once every day for pH and chlorine (or other disinfectants).

More frequent testing should be done in hot sunny weather or when the pool is being used by many people, so significant changes in water quality can be detected before problems develop. Other parameters (see below) should be measured weekly.

Reliable pool water test kits should be used - kits can be purchased from swimming pool shops, some supermarkets, hardware and major department stores.

The following parameters should be maintained and adjusted to the affects of weather and water clarity.

Disinfection levels

Use a commercially available disinfectant suitable for domestic swimming pools. Chlorine is the most common, but bromine, ozone, UV irradiation and ionising systems may be used.

If chlorine or bromine are not the main disinfecting agents, a small amount of chlorine or hydrogen peroxide needs to be added to maintain residual disinfection activity in the water. Consult the supplier of the disinfecting agent for more information.

The amount of chlorine in the water that is effective in killing bacteria is called “free chlorine”. If chlorine is used, the free chlorine level in your pool should be maintained at 1.0 to 3.0 mg/L. The ideal level is 2mg/L.

When the pool is not in use a method such as a floating immersion dispenser should be used to disinfect the pool water at all times.

After the pool is heavily used, after a rainstorm, or if the pool is poorly maintained it may need to be “shock dosed” (see next column) to bring it back to a safe standard for use. The shock treatment helps chlorine and the filtration system keep the water safe, clear and free of water soluble wastes such as cosmetics, perspiration, urine and suntan lotions.

Shock dosing

When using chlorine:

- add a sufficient chlorine (or other suitable oxidising agent) to the water to achieve 10mg/L residual free chlorine. For example, add 200mL of liquid sodium hypochlorite (12.5% available chlorine) or 30g of granular calcium hypochlorite per 1000L of water
- ensure 10mg/L residual free chlorine is maintained for at least one hour
- operate the pump and filter at all times during shock dosing.

Consult your pool supplier if using other products.

Caution: Do not use the swimming pool until free chlorine falls to 4mg/L. This may require leaving the pool overnight.

Salt pool chlorinator

One method of chlorinating a pool is using a salt pool chlorinator. A measured quantity of salt is dissolved in pool water. As the salt water passes through a chlorine generating cell, it produces chlorine. Refer to your salt chlorinator’s operation instructions for specific details.

pH

To ensure chlorine works efficiently, the pH range must be within 7.2 – 7.6. This is also the ideal pH of water for the comfort of pool users.

Stabiliser (Isocyanuric acid)

To prevent chlorine from rapidly breaking down in pools exposed to direct sunlight, isocyanuric acid can be

added to reduce the amount of chlorine consumed. It should be maintained at a level of at least 30mg/L and no more than 50mg/L.

Note: Use of stabilisers is a matter of personal choice. Further advice can be obtained from a swimming pool supplier.

Total alkalinity

Total alkalinity should be checked once a week to prevent cloudy water, scale formation, metal corrosion and keep the water comfortable for users.

The total alkalinity range for chlorine disinfection should be 60 to 200mg/L and adjusted by using sodium bicarbonate as advised by the supplier.

Handy hint: Add small quantities of chemical mixed with water at a time to the pool with the pump and filter operating. Wait 10 - 15 minutes before testing.

Calcium hardness

To prevent scale formation, calcium hardness should be checked once a week. The ideal range of calcium hardness is 150 to 400mg/L.

Prevent algae

Algae are small organisms that multiply rapidly and can form slimy, green floating material or coat surfaces. They are very common organisms brought in by rain, wind, soil or even on swimwear and cleaning equipment.

Good pool maintenance can prevent algae growth. Algae in pool water disinfected with chlorine is an indicator that free chlorine is not being maintained. If algae are present ensure that disinfectant and pH levels are within the recommended range.

Algae can also be controlled by the use of an algicide, but if algae persist consult your pool supplier.

Topping up the pool

The water in the pool should be topped up regularly using only a hand-held hose or bucket and disinfectant and pH levels checked. All top up water should be added via the skimmer box with the filtration system running.

Water temperature

Water temperature is one of the factors that affect disinfection, so treatment should be adjusted to maintain recommended values. If the pool is continuously heated it will require continuous disinfection. For heated pools, check the temperature regularly and maintain it at a comfortable 26 - 30ºC.

Maintenance

All domestic swimming pools need regular cleaning:

- remove litter and vacuum the bottom of the pool regularly to remove dirt and debris
- scrub the pool walls and surrounding areas regularly to remove debris
- clean the pump lint-pot and filter system regularly (daily when using manual dosing) so they are clean, working correctly and not a source of contamination repair any damaged pool surfaces
- keep pipes, filters and motors in good working order
- service all pool equipment according to manufacturer's directions
- ensure all electrical equipment is maintained in good condition and all repairs performed by a licensed electrician
- use a pool cover when the pool is not in use to keep dirt, leaves and debris out, to minimise mosquito

breeding, and to reduce water loss by evaporation

- pool chemicals should be used according to the manufacturer's instructions and be stored in a cool, dry, clean and safe area out of children's reach.

Domestic 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
- the water has been heavily contaminated, or
- the recirculation pumps and filters are not operating properly.

Further information

Water quality:

- Local Council Environmental Health Officer
- the Department of Health on 8226-7100 or go to our website:

  www.health.sa.gov.au/pehs/environ-health-index.htm.
- Swimming pool shops
- Swimming pool manufacturers

Fencing and safety barriers:

- Your local Council
- Planning SA: 8303-0600 www.planning.sa.gov.au.

Water restrictions:

- SA Water: 1800-130-952 www.sawater.com.au.

Contact

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Public Health
SA Health

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11 Hindmarsh Square
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Tel 08 8226 7100
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