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## Swimming pools - water quality

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### Summary

- People swimming in the pool are the main source of contamination.
  - The keys to maintaining water quality in your swimming pool include filtration, chlorination, pH level, total alkalinity (TA) and calcium hardness.
  - Check your pH and chlorine levels daily – preferably, these tests should be done before the first swim of the day to make sure the water quality hasn't altered overnight.
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If it is not properly maintained, the water in your domestic swimming pool may contain a range of microbiological organisms (microbes), including bacteria, viruses and protozoa. These microbes can cause health problems, such as gastroenteritis, ear, nose and throat infections.

You should check your swimming pool regularly to make sure that the water is safe for swimming. A simple way to do this is to look into the pool each day and check:

- Is the water clear?
- Can you see to the bottom of the pool?
- Does the water look any different to how it looked the day before?

Any changes, such as cloudiness, mean you should test the water and take steps to improve water quality before anyone goes swimming.

### Sources of contamination in swimming pools

Potential sources of microbes in your pool may include:

- People swimming in the pool – this is the main source of microbes.
- Animals, such as dogs – some pets like to paddle in the pool on hot days.
- Dead wildlife – for example, frogs, lizards or insects may occasionally drown in your pool.
- Debris from around the property, such as leaves, grass and dust.

### Swimming pool maintenance

The five keys to maintaining water quality in your swimming pool include:

- filtration
- chlorination
- pH level
- total alkalinity (TA)
- calcium hardness.

### Swimming pool filtration

The water in your pool is pumped through a filter to remove debris and particles. How long you need to run the filter depends on the size of your swimming pool and the horsepower of your pool pump. If you are unsure, check with the manufacturer or consult with a pool maintenance professional.

Most pool filtration systems are not able to filter all the water in the pool. Chlorination is a common and effective treatment often used alongside filtration to inactivate microbes that may be present in the pool water. The best maintained pools rely on multiple treatment barriers.

## **Chlorination for swimming pools**

Chlorine is a chemical that disinfects the water and helps to remove debris. You should use a chlorine stabiliser to extend the chlorine's half-life. Generally, the longer your filtration cycle, the less chlorine you will need. Similarly, the more chlorine you use, the shorter your required filtration cycle.

Remember that your chlorine requirements will be affected by a range of factors, including your pump and filter system, water temperature, water level, amount of debris and the number of swimmers in your pool.

## **pH level in swimming pool water**

The pH level indicates how acidic or alkaline the water is at any given time. A pH level of 7 means that water is neutral; above 7 means the water is alkaline, while below 7 indicates acidity. Aim for a pH level of between 7 and 7.6. If the water pH is higher than 8, anyone who swims in the pool is at risk of skin rashes, while a pH of lower than 7 can sting swimmers' eyes.

Some of the many factors that can affect your pool's pH level include heavy rain, the number of swimmers in the pool and chemicals. Remember to regularly check the pH level.

## **Total alkalinity and swimming pools**

Total alkalinity means the sum of all alkaline chemicals in your water. If the total alkalinity is too low, the pH balance can become unstable. Concrete and painted pool surfaces will also deteriorate over time. The total alkalinity and pH are interconnected. For example, raising the total alkalinity could also raise the pH. Make sure you don't disrupt your pool's pH when adjusting the total alkalinity and vice versa.

## **Calcium hardness in swimming pool water**

Calcium hardness refers to the amount of the mineral calcium dissolved in your water. Low calcium levels will deteriorate pool surfaces, while high calcium levels will leave a 'scum' or scale on surfaces and equipment.

Consult a pool professional for information on how to maintain good water quality in your swimming pool. Ways to maintain pool water quality may include:

- checking pH and chlorine levels daily. Preferably before the first swim of the day to make sure the water quality hasn't altered overnight.
- checking the pH and chlorine twice daily in very hot weather.
- monitoring chlorine levels in heated pools which need more chlorine than non-heated pools.
- brushing and vacuuming your pool on a regular basis.
- regularly checking the pump, skimmer boxes and other pool equipment, and repair or replace parts as necessary.

## **Solving common swimming pool problems**

Your pool maintenance specialist or pool chemical supplier can provide advice about other common problems, which may include algae, faeces or a chlorine smell in your pool.

### **Algae in swimming pools**

Algae are single-celled organisms that grow quickly in the right conditions and can turn the water in your swimming pool green within a few hours. Chlorine will help prevent growth of algae. Talk to a pool specialist to get advice on how to treat algae.

You can use a brush and garden hose to remove algae from pool surfaces. The next day, vacuum the settled algae from the floor of your pool - don't try to remove it by running the filter. Make sure you check the TA, pH and calcium hardness before you allow anyone to swim.

### **Faeces in swimming pools**

Young children can occasionally have a faecal accident while swimming. Get everyone to vacate the pool and remove as much of the faeces as possible using a fine mesh scoop. If your pool is small, you might consider draining and cleaning it. Otherwise, add a concentrated (10 mg/L) dose of chlorine to the pool and don't allow anyone to re-enter the pool for at least half an hour.

Make sure you check the chlorine levels have dropped back to regular levels before anyone re-enters the swimming pool.

### **Strong chlorine smell in swimming pools**

A strong chlorine smell can affect the eyes, nose and skin. Contrary to popular belief, it's too little chlorine that causes the smell, not too much. Too little chlorine permits chloramine compounds to form. It is these compounds that have the strong smell and that cause the irritation. If your pool smells strongly, check the chlorine level as you may need to add more chlorine.

### **Safety suggestions for pool chemicals**

Pool chemicals can be dangerous if not handled properly. Suggestions include:

- Keep pool chemicals away from other chemicals and locked up in a cool, dry place.
- Do not store pool chemicals near other chemicals or flammables, including petrol, detergents or alcohol.
- Always use chemicals strictly as instructed.
- Never combine chemicals together – for example, mixing different types of chlorine together (such as granular and liquid) can cause an explosion.
- To avoid splashing the chemicals, always add the chemicals to water and not the other way around.
- Don't add the water to the chemicals.
- If you are splashed, rinse contaminated clothing straight away and wash your skin thoroughly in plenty of water.

### **Where to get help**

- Swimming Pool and Spa Association of Victoria Tel. (03) 9872 4502
- Pool chemical suppliers
- Pool maintenance companies
- Environmental Health Officer at your local council.

### **Things to remember**

- People swimming in the pool are the main source of contamination.
- The keys to maintaining water quality in your swimming pool include filtration, chlorination, pH level, total alkalinity (TA) and calcium hardness.
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**This page has been produced in consultation with and approved by:**

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