

WATER QUALITY

Imagine having to wait 20 minutes to boil and then cool water every time that you wanted a drink. In some parts of the world people must do this or they may become sick because the water is full of bugs and disease carrying bacteria.



Most of us, however, simply turn on the tap, and pure, clean water fills the sink. Have you ever stopped to think how such a safe and reliable supply of water is maintained?

What about problems with water quality – how do they occur and what are the solutions?

The quality of your water supply can be affected by a number of things - from reservoir catchment areas to your home plumbing system.

Catchments and Water Supply

Water from various catchment areas can be quite different, including in colour and taste. Water supplied to South East Water's area is of a high quality and comes from the Upper Yarra Reservoir and the Thomson Reservoir then delivered to the area via storage reservoirs, such as Cardinia and Silvan. A small number of places in our area including Garfield, Longwarry and Bunyip may also receive supply from Tarago Reservoir, if necessary.



The vast majority of our water comes from protected or closed catchments. This means that there is no farming or forestry and only restricted public access to the area around the reservoir. As a result, the rainwater that flows into the reservoirs is not affected by human activity. However, some catchments, like Tarago, are only partially protected and activities such as forestry and farming occur within these catchments. Water from these catchments is fully treated to ensure good quality.

Keeping It Clean

To ensure good water quality, all major parts of the water supply system are cleaned regularly. Most service basins and tanks are emptied and cleaned every year, although some of the larger storages are cleaned only once every two to three years. Water mains are also flushed by having water released under pressure



through fire hydrants. These pipes may also be cleaned by compressed air in a process known as 'air scouring'. Larger pipes are cleaned by forcing foam cylinders, known as 'swabs' through them. South East Water has procedures to protect the environment whenever it is cleaning the water supply. Finally, to monitor water quality, regular testing of water from customer's taps, service reservoirs, water mains and aqueducts, is carried out for South East Water by independent laboratories. In addition, Melbourne Water regularly monitors the water quality of dams, rivers and streams.

Chemicals in Your Water

Other than distilled water, all water contains some chemicals. These small amounts of chemicals are dissolved in the water as it passes through the atmosphere and through soil. Water authorities throughout the world add small amounts of chemicals to the water that they supply. These chemicals may have strange sounding names but they all have an important role to play in making water safe.

To ensure the provision of clean, safe water, a great deal of scientific research has led to the development of guidelines (rules) for the use of chemicals in water treatment. Organisations, such as the World Health Organisation (WHO) and the National Health and Medical Research Council of Australia are responsible for these guidelines.



The chemicals added to our water supply include:

- **Sodium silicofluoride (fluoride)**

This chemical raises the level of natural fluoride in the water and helps to develop resistance to tooth decay in children. The amount of fluoride added to our water supply is equal to about one sugar grain added to a cupful of water.

- **Lime/Soda Ash**

These chemicals help to restore the pH levels of water to neutral (neither acid or base) after fluoride has been added. They are also added to the water to prevent corrosion and reduce the formation of scale (a crust that forms on pipes and other objects).

- **Chlorine**

This chemical is used widely throughout the world to disinfect water and remove the risk of diseases, such as gastroenteritis (a stomach bug). The amount of chlorine added to our water supply is equal to less than half a tea cup added per an average-sized backyard swimming pool.

Rain Water Tanks

Some people in our area rely on rain water tanks for their water supply. Water quality is a potential problem with all roof water systems such as rain water tanks, especially in urban and industrial areas.

Water quality problems may include:

- Atmospheric pollution, particularly in urban and industrial areas.

- Bird and possum droppings which can pollute the water with bacteria and gastro-intestinal parasites.
- Insects, lizards and other small animals which can get into the tank and may die there.
- Roofing material and paints. Lead-based paints in particular should never be used on roofs from which water is collected. Tar-based coatings are also not recommended, as they may affect the water's taste.
- Detergents and other chemicals from roofs painted with acrylic paints can dissolve in the runoff. Runoff from new roofs made of fibrous cement should be discarded for an entire winter, due to the leaching of lime.
- Good design and maintenance of rain water tank systems is very important.



If you want to use rain water in your garden, less attention to water quality is needed. In most areas, no problems are likely to occur if water from this source is used on the garden.