

Rainwater in Port Pirie



Drinking rainwater is a source of lead exposure which, together with other exposure sources around Port Pirie, can cause elevated blood lead levels. It is recommended that you do not drink rainwater in Port Pirie.

Why is rainwater a concern?

Rainwater in Port Pirie contains lead. Studies have shown that contamination can be at levels high enough to cause serious health concerns or poisoning if consumed. Having a rainwater tank can reduce a household's reliance on mains water and can save money on your water bill, but drinking rainwater or using it in any circumstance where the end product is consumed can be a health risk. This risk can be easily avoided by drinking and using mains or bottled water.

The main way lead enters the body is through the mouth. This usually occurs when hands or other objects become coated with lead-contaminated dust and are then placed in the mouth.

Drinking contaminated rainwater is another way that lead can enter the body. Together with other exposure sources around Port Pirie this can cause elevated blood levels, often above the National Health and Medical Research Council (NHMRC) recommended exposure investigation level. Lead can be harmful to people of all ages but the risk of health effects is highest for unborn babies, infants and children.

The NHMRC provides health advice and guidelines for the Australian community, governments and health professionals. One of the NHMRC's tasks is to advise the community about lead exposure, the health effects of lead and how they can be managed. The NHMRC recommends that if a person has a blood lead level higher than five micrograms per decilitre ($\mu\text{g}/\text{dL}$), the source of lead exposure should be investigated and reduced, particularly if the person is a child or pregnant woman. The NHMRC advises that at blood lead levels above $10 \mu\text{g}/\text{dL}$ it is well-established that exposure to lead can have harmful effects on a number of body functions and organs, in both adults and children. Research now shows that blood levels below $10 \mu\text{g}/\text{dL}$ may also be associated with some health effects. However, at this stage the NHMRC has concluded that the evidence is not strong enough to show that lead is the cause of these effects.

Pregnant women and young children should not use or drink rainwater collected in Port Pirie.

Are there national standards for lead in water?

The current Australian Drinking Water Guideline for the maximum level of lead in drinking water is 0.01 milligrams per litre (mg/L). Rainwater samples in Port Pirie often exceed this level.

Is there lead in my rainwater?

You should assume that all rainwater in Port Pirie contains lead. Lead levels will vary considerably depending on the age of the house and tank, type of tank, rainfall, maintenance of tank, collection surface and the location of the house in relation to the smelter and the railway line. Testing of rainwater in Port Pirie has found lead levels up to 10 times the Australian Drinking Water Guideline.

How does rainwater get contaminated?

Dust in Port Pirie contains lead. This dust can settle on house roofs and when it rains the lead-contaminated dust is washed into rainwater tanks, contaminating the tank water supply.

Rainwater can also be contaminated by other sources of lead, even in areas without a lead smelter, including:

- > lead-based paint used on roof surfaces, gutters, lead washers from roofing screws and lead flashings
- > lead-based solder used on the inside of tanks
- > sludge at the bottom of tanks
- > organic matter such as leaves can alter the acidity of water which can mobilise lead particles in rainwater making them more available for the body to absorb when drinking
- > brass plumbing fittings and fixtures, such as taps, and pipes which contain lead
- > PVC products, such as irrigation pipes, have been shown to contain lead in some cases.



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Can I drink rainwater?

It is recommended that you do not drink rainwater in Port Pirie, particularly if mains water is available. This includes using rainwater for teeth brushing, as rinse water is often swallowed, particularly by children.



Can I use rainwater for bathing?

Human skin does not absorb lead very well, so it is acceptable to use rainwater for bathing and showering. However, young children may drink bath or shower water so it is recommended that rainwater is not used for these purposes if you have young children.



Will boiling my water eliminate lead?

Boiling water does not eliminate lead from rainwater; in fact, because some of the water evaporates during the boiling process it can actually increase the lead content in the water.



Can rainwater be plumbed into my toilet?

Rainwater is suitable for use in toilets.



Can I use rainwater for cooking and food preparation?

Rainwater should not be used for any purpose where the end product is consumed (by either eating or drinking). This includes using rainwater for preparing baby formula, baby foods, the sterilization of baby equipment, cooking, tea and coffee, cordial and making ice cubes.



Can I use rainwater for watering my garden and hosing down outdoor surfaces?

Rainwater can be used for watering non-edible gardens and irrigating lawns, but it should not be used to water edible fruit or vegetables. Mains water should be used for watering home-grown produce.

Dusty outdoor hard surfaces such as paved pathways, cement driveways and verandahs can be hosed down with rainwater.

Poultry and other animals should not be given rainwater for drinking or be provided grass cuttings as forage from lawn that has been watered with rainwater.



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Does my plumbing contain lead?

Brass or chrome plated brass plumbing fittings in Australia contain lead and have been a source of drinking water contamination. Water sitting in taps and pipes, particularly overnight, can leach lead from fittings into drinking water. This predominantly impacts the water that comes out when the tap is first turned on.

If these fittings are used with rainwater, the possibility of lead leaching into water may be slightly higher compared to mains water due to the softness of rainwater (which makes it more corrosive). Lead leached from fittings can generally be avoided by flushing the first few litres of water that has been sitting in the taps and pipes overnight or for extended periods of time.

To ensure products that come into contact with drinking water do not leach lead into water, it is recommended that they meet the 'Australian Standard 4020 (AS/NZS 4020)'. Plumbing suppliers and professionals should be able to provide advice on this matter.

Although taps containing lead can be a source of water contamination, lead-contaminated dust, along with lead paint and lead flashings, account for most of the rainwater contamination in Port Pirie.

Will a filter remove lead?

There are many filters and filtration systems available, including those purchased from supermarkets, that claim to remove lead from drinking water. Many of these claims are based on removing lead from water that already has low lead levels near or below the Australian Drinking Water Guideline (0.01 mg/L).

These filters are not designed, tested or certified to remove the high levels and 'type' of lead that is found in rainwater in Port Pirie.

If there is no alternative to using rainwater in your home, there are a small number of specialised filters that may be suitable for reducing lead from highly contaminated rainwater. Even with these filters, complete removal of lead from rainwater may not always occur, so it is still recommended that pregnant women and young children avoid drinking and using rainwater in Port Pirie.

Staff at the Environmental Health Centre (telephone: (08) 8638 4100) can provide you with further information.

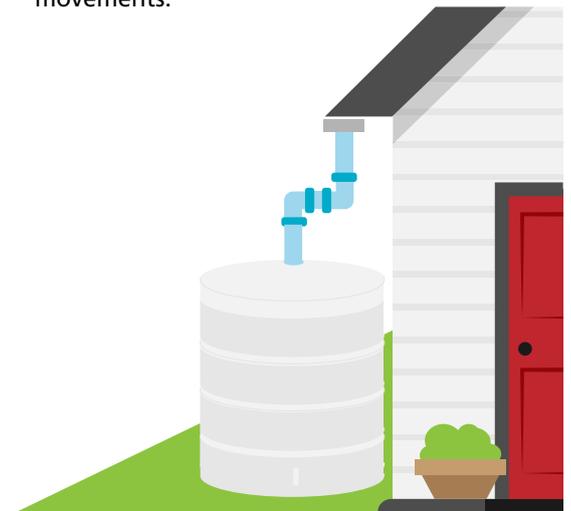
How should I clean and maintain my rainwater tank?

It is recommended that tanks are fitted with a first flush diverter and SA Health's [rainwater tank and maintenance guidelines](#) are followed. Guidelines include not collecting water from sections of roof that have lead flashings or from roofs painted with pre-1980s' paint and minimising the amount of leaves and organic matter that can enter the tank.

Tanks should be examined for accumulation of sludge at least every two years. Water that is in contact with contaminated sludge can have considerably higher lead levels than water in the rest of the tank. De-sludging and cleaning may help to remove some of the lead from your tank, but will not guarantee a lead-free water supply and the tank will get recontaminated. It is also important that the material removed from your tank during de-sludging and cleaning is not used on the garden as it will contaminate the soil.

Can I get my rainwater tested?

Rainwater can be tested for lead contamination, but sampling is unreliable for measuring ongoing lead levels because levels can change quickly after rain events and during long dry periods. **Therefore, testing cannot be used to determine if rainwater is safe to drink due to the variability and seasonal fluctuation in smelter emissions, rainfall and lead dust movements.**



For more information

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