



Country rainwater collection

Rainwater is a vital resource where reticulated drinking water supplies are not available. It can be quite safe to drink when it is carefully collected and properly stored. This information guide is designed specifically to minimise the health risk to you and your family.

Is rainwater always safe to drink?

Unless adequately treated, rainwater is not reliably safe to drink. It is almost impossible to completely protect rainwater from:

- bird and other small animal droppings (e.g. lizards, mice, frogs, possums, etc)
- other debris including dead animals and insects containing microbes
- air pollution from industrial emissions and heavy road traffic
- agricultural activities generating dust and spray drift.

Are there simple ways to reduce rainwater contamination?

Yes, regular maintenance is the key to good rainwater quality.

- Roof catchments including the gutters and down pipes should be kept clean and clear of leaves.
- Overhanging branches of trees, shrubs and potential perches for birds such as wires and TV antennas should be removed.
- The inlet and overflow of the tank should be screened with a mesh to prevent birds, animals and insects from gaining direct access to the water.
- The tank should have a cover to prevent light from reaching the water, as light encourages the growth of

bacteria and algae. The cover should have a tightly sealed manhole, to allow access to the tank for cleaning and inspection purposes.

- Each year allow the first good rains to rinse the roof and gutters and run to waste.
- Remove the sludge every two to three years (de-sludging).
- To prevent corrosion and metal contamination, guttering and pipework should be self-draining or fitted with drainage points.
- A well maintained leaf trap will reduce the amount of organic matter that enters the rainwater tank through the inlet.

Disconnect the pipe to the tank when carrying out maintenance on solar hot water systems on roofs. Solar hot water systems contain heat transfer fluids that can contaminate the rainwater supply in the event of a spill or leakage. Reconnect the pipe when you are certain that there is no leakage after maintenance.

Where can I collect rainwater?

Rainwater can be collected from most types of roofs, including cement, terracotta tiles, Colourbond[®] and galvanised iron, Zinalume[®], polycarbonate, fibreglass sheeting or slate.

It is also safe to collect rainwater from asbestos/fibro cement roofs as there is no evidence to suggest that asbestos related diseases occur from drinking this rainwater.

Roofs made from preservative treated wood (copper chrome, creosote or pentachlorophenol) or coated with bituminous products or lead based paints should not be used to collect rainwater.



Rainwater should not be collected from parts of the roof that incorporate:

- a chimney from a wood burner
- discharge pipes from roof mounted appliances such as evaporative air-conditioners or hot water systems
- lead based flashings.

How do I store rainwater?

Rainwater tanks can be made out of a range of materials including plastic, concrete, fibreglass, galvanised steel, Aquaplate®, Zinalume®. However, all rainwater tanks should be covered and sealed to prevent the entry of dust, insects and vermin.

I don't want to run out of rainwater

The amount of water required to adequately supply your needs is dependent upon:

- rainfall
- roof area
- rain water tank size
- the amount of water used in and around your house.

The Domestic Water Use Study 1998–2001 published by the Water Corporation provides useful information about the average in-house water use for each appliance based on the number of occupants.

Also Farmnote 64/2004 on Rainwater tanks produced by the Department of Agriculture provides a simple method of determining your water needs. See **Weblinks** for more information about these pages.

Can I top up my tank?

You may need to top up your tank from a commercial water cartage company. Before you do, consider these points:

- Is the tanker exclusively used for drinking water?
- Has the water come from a scheme drinking water supply?
- Has the water been treated with at least 1mg/L of chlorine whilst in transit?

Should I treat my rainwater?

Regular chlorination of your rainwater tank should not be necessary. However, if you suspect the water in your tank is contaminated, treat it with swimming pool chlorine in accordance with the following table:

Treatment	Calcium hypochlorite 60–70%	Sodium hypochlorite 12.5%
Initial dose	7 grams/1000 litres	40 mL/1000 litres
Weekly	1 gram/1000 litres	4mL/1000 litres

Note:

- Use either Calcium hypochlorite or Sodium hypochlorite, not both at the same time.
- Do not use stabilised chlorine (cyanurate).
- Allow a minimum of two hours before drinking.
- Mix the chlorine in a plastic bucket IN THE OPEN AIR before adding it to the tank.
- **Do not pour water onto chlorine. Always add chlorine to water.**

Should I test rainwater?

Routine testing of rainwater is not normal practice and in most cases would not be necessary. If tested, the results should be compared with the values contained in the



Australian Drinking Water Guidelines (NHMRC/ARMCANZ, 2004).

Refer to the Department of Health Publication, "Standard Drinking Water Assay" for further information.

Should I add fluoride?

Great care needs to be taken when adding fluoride to drinking water. Before you decide, you should talk to your dentist, the community dental service or the Australian Dental Association.

Are mosquitoes a problem?

Rainwater tanks can become breeding sites for mosquitoes that can cause severe nuisance and carry serious diseases. In WA the most common mosquito found to breed in poorly maintained rainwater tanks is a proven carrier of Ross River virus and other mosquito borne viruses.

To prevent mosquito breeding, guttering and pipework should be self-draining or fitted with drainage points. Water should not be allowed to pool under the overflow outlet or tap as these can become mosquito-breeding sites.

All rainwater tanks should be completely sealed as holes and spaces will allow mosquitoes to enter. The inlet and inspection ports should incorporate a fine mesh cover to prevent the access of mosquitoes and other insects. The overflow should also be covered with an insect proof cover such as plastic insect mesh wired around the pipe. Insect mesh should be no coarser than 12 x 12 meshes/25mm².

A short term solution to stop mosquito breeding is to add a cup and a half of liquid paraffin (in large tanks greater than 10,000L) to the water. The amount needed will vary depending upon the surface area of the water. A sufficient quantity to produce a thin film over the water surface is all that is required. This should be done at the end of

the winter rains and again if the tank overflows. Both will evaporate over time so check the tank several times during the year.

Do I need building approval?

Before purchasing and installing a rainwater tank, check with your local government for building regulations that apply in your area.

Can I use my rainwater tank for fire fighting?

Your rainwater tank may be the only source of water to fight fires. The Fire and Emergency Services Authority of Western Australia (FESA) may have special requirements for you to follow. For more information please contact FESA on (08) 9323 9300.

Should I use my rainwater for crop spraying?

Rainwater used to mix crop spraying chemicals should be separated from your drinking water supply.

Ensure you do not use any crop spraying mix water or equipment to top up your drinking water supply as it may contain chemical residues.

See **Weblinks** for Farmnotes.

What materials should I use?

Any part of your rainwater system that comes into contact with drinking water such as tanks, liners, pipes, taps and valves should comply with one of the following Australian Standards:

- AS 2070, Plastic materials for food contact use
- AS 2179 –1994, Specifications for rainwater goods, accessories and fasteners



- AS 2180 –1986, Metal rainwater goods – selection and installation
- AS 3500.1 –1992, National plumbing and drainage code. Part 1: Water supply
- AS 3855 – 1994, Suitability of plumbing and water distribution systems products for contact with potable water
- AS 4020 – Products for use in contact with water intended for human consumption with regard to their effect on the quality of water
- AS 4130 – Polyethylene (PE) pipes for pressure applications.

If you are not sure look for the Standards marking on the product or ask your supplier.

Irrigation piping should not be used for drinking water purposes as it can contain and release lead.

Summary

- Keep gutters and roofs clean and in good repair.
- Do not allow the first rainwater run off to enter the tank.
- Use a leaf trap on the inlet.
- Screen the inlet and overflow for insects/animals.
- Cover and seal the tank to prevent the entry of sunlight, dust, animals, mosquitoes and other insects.
- Install a tightly fitting manhole cover for cleaning and inspection purposes.
- Make sure all materials in contact with drinking water are Australian Standards approved.
- Separate crop spraying mix water from drinking water supplies at all times.

Other water quality guides available

- Urban Rainwater Collection
- Emergency Treatment of Drinking Water Supplies
- Water Filters
- Nitrate in Drinking Water
- Using Bore Water Safely
- Standard Drinking Water Assay
- Ultra Violet Disinfection Systems.

Weblinks

Department of Agriculture *Rainwater Tanks and Designing Reliable Water Supplies* Farmnotes (PDF 114KB) can be found at:

www.agric.wa.gov.au/content/lwe/water/eng/fn064_2004.pdf

Australian Drinking Water Guidelines (NHMRC/ARMCANZ, 1996) can be found at:

www.nhmrc.gov.au/publications/synopses/e/h19syn.htm

Domestic Water Use Study (PDF 818KB) can be found at:

www.watercorporation.com.au/files/publicationsregister/12/Domestic_water_use_study.pdf

More information:

Water Unit
Environmental Health Directorate
Department of Health
PO Box 8172
PERTH BUSINESS CENTRE WA 6849

Telephone: 08 9388 4999
Facsimile: 08 9388 4910

