



www.watertanks.org.au

A Division of Association of Rotational Moulders Australasia Inc



Rainwater is now a very personal responsibility

In recent years we've all become more aware of how finite our natural resources are becoming and now many of us want to take back some personal responsibility to manage our own contribution to our planet's ecological future.

Only a few years ago our water resources seemed endless and the idea of us having to actively manage our own water usage was more in the realm of fantasy than everyday living. Every day, there are many simple little things we can do around the house to save water, save money and help the environment. One of the easiest ways we can all contribute to water management is to store what water we do have in a rainwater tank. Images of water tanks are integral to the Australian psyche, however for many years the issues surrounding them have been misunderstood and with the huge investment by Government in a an infrastructure which seemed to provide unlimited water at the flick of a tap, water tanks went out of fashion.

Like most other aspects of our modern society, water tanks have undergone a renaissance in recent years, as all levels of Governments recognize what a valuable asset they can be our nations water bank. While the possibilities water tanks offer having been raising interest in the minds of those who need to plan for a viable future, tank manufacturers have been responding to the desires of a savvy consumer market by designing and making products that surpass the traditional stereotype of a rusted and leaking tank, huddled at the base of a windmill. Remember, the tank itself is only one component of the process of providing water for your own household. It forms only a part of the water cycle and relies on you to make the right choice on size and style. Even the perfect water tank relies on you to help it by maintain your roof, gutter and the tanks base, to ensure years of safe water storage.



Which is the right water tank for your family?

Plastic, or polyethylene, water tanks are now the biggest selling sector of the booming water tank market.

has been developed and tested in the market place over many years for the manufacture of upright water storage containers. It cannot rot or corrode, and is UV stabilised for Australian & New Zealand conditions. It is also resistant to algae growth as a result of its formulation and not from any addition of fungicides. Water tanks made from polyethylene are available in a range of sizes and designs to suit your needs and to make an attractive addition to your home. This booklet includes a range of information to help you make the right decision on a tank to meet your own personal needs.

Already convinced you need a plastic rain water tank? If you're ready to go out and buy a tank now, here's some information to help you make the right decision for your home. First, take a look at the rainfall in your area either by checking out your local weather website. Many tank suppliers can help provide you with this information too. You will need to know the approximate measurements of your roof available for channeling the water into your tank and finally you'll need to work out roughly how much water your particular household uses and how much of that you want to use rain water for (or how much your local authority will allow you to use rainwater for).

Government guidelines differ between local authorities and some will have specific rules about whether tanks can be used in the entire house, only for washing and toilets or only for the garden. Most rebates and subsidies rely on tanks being installed in the required way, so make sure you check this out before you decide on your tank size and its installation. Finally you'll need to decide what type of tank best suits your space. Above the ground cylindrical tanks come in straight wall or corrugated sides. There are various models available of narrow tanks to fit under your house eaves, tanks that can be used as fences or walls in your outside areas and if space is an issue for you, there are also a range of in ground tanks available.

Round tanks are far more economical but, they generally take up more room. If space is a limiting factor, look at the slimline range as they are generally taller but will also normally fit down the unused side of the house. Above ground tanks are usually of the traditional round variety, or oval or square 'slimline' style. These are usually used where space is at a premium, which is often the case nowadays, where large houses on small blocks and very little space between the house and the fence line is common. However if space at your home is at a premium, some poly tanks are also suitable for underground placement. If you value aesthetics highly, then poly tanks may well be your first choice as they have clean, smooth lines and come in a huge range of colours and styles including modern straight wall designs or the more traditional corrugated styles.

Preparing your home for a rainwater tank

The success of the experience of nurturing your own family members, or indeed your garden all comes down to the quality of water you put into your tank.

For households where the captured water is going straight onto the garden you may not need to take many measures to ensure everyone's safety but you should make your family aware that water in this type of tank is not for drinking.

To get the best quality water into your tank, it's up to you to undertake regular maintenance not only of the tank itself but, more importantly your roof and gutters. Here's a few key things you can do to provide the best quality tank water. Firstly, it is important to find out if your roofing material or the paint used on your roof or in your gutters etc., could contaminate rainwater. For example, tar-based coatings can bind other harmful organic chemicals to the roof



or gutter and be difficult to clean. 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, chemically treated timbers; or lead-based paints or flashings.

You should always try to install the largest tank you can afford, or have space for. Weather patterns vary, so it's a good idea to store as much water as possible, in case it's a long time between rainy days. Your tank manufacturer will be able to give you some great guidance about exactly the right tank for your home, but if possible remember to buy the size that's right for your family, not the size that relates to a subsidy.

1mm of rain on every square meter of surface area results in 1 litre of water into the tank. So, if your house roof is 12 meters long by 10 meters wide - $12 \times 10 = 120$ square meters. If you had a very brief storm that dropped 1mm of rain on the roof, you would receive $1\text{mm} \times 120 \text{ sq m} = 120$ litres of rainfall into the tank. A larger storm comes through and drops 25mm of rain, $25\text{mm (of rain)} \times 120$ (square meters of roof area) = 3,000 litres of rainwater into your tank. This calculation works for any roof area, all you need to know is the length x the width = square meters.

Advertising, marketing & frequently asked questions

Tank manufacturers want your business and in an attempt to do so, some may advertise information about water tanks that is confusing.

The poly tank industry association advocates that our members sell their products on their own merits and do not indulge in criticizing other people's products to sell their own. We've included lots of information in this section to help you understand the issues involved in providing home water storage.



Are mosquitoes a problem?

Rainwater tanks can become breeding sites for mosquitoes that can cause severe nuisance and carry serious diseases.

To prevent mosquito breeding and contamination, it's vital 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 of the tank as these can become mosquito breeding sites. The tank should be a sealed unit with the lid preventing sunlight from reaching the water. Sunlight encourages the growth of algae that may taint the water. A good tank design prohibits vermin from entering the tank by ensuring all the inlets are covered with screening too small to allow them in, however holes and spaces created by you after or during installation could allow mosquitoes to enter, so be careful. The inlet should incorporate a mesh cover and a strainer to keep leaves and to prevent the access of mosquitoes and other insects. The overflow can also be covered with an insect proof cover such as plastic insect mesh wired around the pipe. Most government agencies have specific guidelines about the maximum size of mesh aperture allowed.

Do poly tanks cause cancer?

The material used to manufacture poly tanks is not the same as that used to store water in small bottles (PET), which has been studied by scientists in relation to leaching back into the water.

There is absolutely no evidence that polyethylene leaches any chemicals into the water that could cause cancer.

Do poly tanks split at the seams?

Actually there are no seams in poly tanks.

Lines that may be visible on the outside of the product that look like joins are actually where the two parts of a mould join together, however the product isn't made from two sides joined together, so the tank forms as one solid piece during the process.

How long will poly tanks last?

There are poly tanks that have been giving loyal service storing liquids for over 30 years, however there is no definite "life" period for a poly tank.

As with any other product you buy, its "life" will depend on how you install and maintain it, after it leaves the factory and what service environment is like. Most tanks will far outlive their warranty period, however the Australian & New Zealand Standard requires a design life of 10 years.

Can a poly tank fail?

Every manufacturer of tanks may experience a failure.

It's exactly why manufacturers offer a warranty, to ensure, should your product fail, it will be repaired or replaced. Industry wide figures confirm the failure rate of poly tanks is less than 1% of tanks sold in 2005. Your local consumer organisation will also be able to provide verified information about complaints made in relation to tank failures of all kinds, not just poly. Members of Association of Rotational Moulders Australasia agree to abide by a Code of Conduct and ARMA is available to help consumers reach an agreement with a manufacturer who is a member of the organization.

What does a UV rating mean?

No matter what you read, every material used to make water tanks has an expected life span that will be affected by its manufacture, quality and exposure to the environment.

Special additives are included in the plastic when making water tanks that help to

extend its life by protecting it from UV degradation. The UV rating shown for the material used to make a tank, refers to a standard test that gives a measurement of the plastics resistance to sunlight. Poly tanks which have been in service, in very harsh environments for long periods of time may contain no more UV stabilizers but continue to hold water for many more years. There are minimum requirements for how long the UV has been tested to, but double the UV rating, does not mean the tank will last twice as long.



Do plastic tanks leach chemicals into the water?

Don't be confused by claims of hormones in plastics.

There are existing studies regarding the leaching of substances from PET into water (like clear plastic water bottles you buy everywhere), however these are inconclusive and a completely different material to that used in poly tanks. Tank materials are made to meet strict guidelines for potability (safe water storage) and food contact.

Is my tank water safe to drink?

While most people who live on farms in Australia drink rainwater that has been caught and stored in tanks many local authorities have rules about drinking water in urban areas.

It's also important to remember that while many Australians were raised on tank water, they have had an opportunity to develop immunities to organisms that it contains that your urban family may not have. Governments recommend water tanks in urban areas for use outside the home and for use in areas of the house where it's not used for drinking. Depending on your particular circumstances, you should always install a first flush type device, even if you don't intend to drink the water.

Can you taste the plastic?

No matter what you may have been told, water stored in poly should have no taste.

Of course, this depends on the maintenance of your roof, gutters and the tank itself. You should be aware though that most rainwater tanks are not approved for drinking water by the local authorities in cities. This policy is not based on any "fears" about any of the materials used to manufacture tanks and relates back to the possibility of unclean drinking water from poorly maintained roofs.

Can poly tanks be recycled?

Yes, they can be completely recycled.

Polyethylene is already regularly recycled and used again in different products. The poly tank industry has shown a real concern for our environmental future by working with Auckland University on finding new ways to make it easy for tank owners to recycle their own tanks at the end of their product life.

First flush systems

Between downpours, your roof collects all manner of contaminants, from bird and other animal droppings through to pollution from vehicles, stoves and heaters, and roof coatings and sealants. All of these wash down into your tank with the first flow of rainwater. First Flush Water Diverters are a critical component of your rainwater management



system. By preventing the first, most contaminated water from the roof they improve the quality and safety of the water, help extend the life of pumps and internal appliances such as washing machines & dishwashers and reduce tank maintenance by ensuring your new tank is filled with cleaner water. The amount of water diverted should be a minimum of 20 litres per 100 square metres of roof area (or 0.2L per m²). In calculating the amount of water to divert, consideration can be given to the surface area of the roof and the amount of pollutants on the roof and gutters.

Pumps

Recognising the increasing demand for water pumping rather than gravitational flows, pump manufacturers can supply a range of pumps that are able to meet these needs right up to a fully automated garden irrigation system.

Rainwater pumps should be selected with three things in mind: application, reliability and noise. For your application you need to know the pressures and flows that you will require. For example, a shower and lawn sprinkler requires 15 litres per minute (lpm) at 140kPa. However if you are running an irrigation system you might need 60lpm at 400kPa. Work backwards from the number of appliances that you want to run at the same time—add them up and this will give you your required flow rate. The relevant pressure required is determined by the pipe size used and the length of the pipe. Stick to 25mm or larger and you won't run into problems around the home. Multistage pumps deliver the highest pressures. A pump professional will be able to guide you in your selection once you have a clear idea of your application. Reliability can be determined by several factors—suitability to the application, materials of construction, quality of the installation, water quality and pump and controller quality. Noise on domestic pumps is governed by EPA guidelines that set out time blocks and maximum noise levels at the closest point of your neighbour's house. A pump's noise is dependant on its type

Level gauges

One very handy device for your water tank is a water level gauge.

These range from a simple dipstick, to mechanical float/stick devices (the higher the stick is above the tank, the more water you have), to wireless electronic sensors which send the water level information to a receiver in the house. Which device you go for, if any, is up to you, and will depend to some degree on the type of tank you select and where it is located.

Leaf guards

Leaf guards can be fitted to either the full length of your house gutters, or they can be a separate trap (often called a rain head) fitted to the down pipes before the inlet of the tank.

Again, these often come as part of the tank package, but if not, they really are a must as leaves can quickly block down pipes.

Bushfires

If you are in a rural area, or even the urban fringe, you should take into account the effects of bushfire on your water tank.

Contamination of tanks from floating ash can be a big issue, and a first-flush device can reduce this problem considerably. Poly tanks can melt down to the waterline if a bushfire gets too close, but in severe fires even metal and concrete tanks can become unusable, so if you are in a fire-prone area then underground tanks might be your best bet.



Installation, maintenance and repairs

If you are installing the tank yourself it's vital to ensure you carefully read the installation and maintenance instructions from your manufacturer.

A poorly maintained base under a poly tank can result in it failing and needing repair. These repairs won't be covered under your manufacturer's warranty.

All water tanks can slowly build up a layer of sludge in the bottom. This is caused by dust and debris entering the tank, which will happen no matter how good your filtering is. You should check your tank for sludge every two to three years. However, in Metropolitan areas there are other factors that need to be considered to ensure that the rainwater you harvest can be used to its full potential.

No matter how tough your tank is, over time it may experience an unexpected impact, which could damage the plastic. It's important that repairs to your tank are made by qualified and experienced contractors, so ensure your tank keeps holding water. It's best to contact your agent or manufacturer first and ask them for a recommended repairer. You may see claims that whole industries have sprung up around tank repairs. That's partly true...sometimes accidents occur, trucks or cars can be backed into tanks, they can be incorrectly installed and very rarely they may have manufacturing flaws that need to be repaired. This is equally true for any type of tank material. Plastic welding companies however, don't fill their days crossing the country repairing water tanks. They do provide an excellent repair and fabrication service when it's required

Manufacturer's guarantees ~ what's in a warranty?

It's important to be realistic in your expectations of any products you purchase and to understand exactly what the conditions are, of any warranty you are offered.

The Association of Rotational Moulders Australasia are the industry body that represents manufacturers of polyethylene water tanks. ARMA encourages consumers to take a balanced approach when considering warranty periods because Polyethylene is a long lasting material, however try not to be distracted by promises of extended warranties. The most important issue you'll consider is if the tank you are buying is a product that has been well made by a reputable manufacturer, so you never have to make a warranty claim.

New car warranties are around three years and it's still hard to keep track of the paperwork. Most very long tank warranties have stringent conditions for you to be able to make a claim and the most important of these is your proof of purchase. It can be a real challenge to find the necessary paperwork even two years after the initial purchase, so ensure you keep these records somewhere safe.

It's also vital to understand that while poly tanks can be easily moved and installed without professionals, most warranties will be voided if the tank is transferred to another location or not installed and maintained correctly. There are very strict guidelines in both Australia and New Zealand for companies who provide guarantees or warranties with their products.



Tank buyers can ask the weight of the tank they are buying, that will help them compare how much material has gone into the product and give some indication of its strength. With plastic tanks it's important the walls are thick and strong and light can't penetrate through the material. To guarantee quality consumers should also ask if their tank is made to AS/NZS 4766:2006 (the Australian & New Zealand Standard for Polyethylene Water Tanks). Companies who manufacture to this standard regularly test their products to ensure they are the best quality possible.

Before you're seduced by infinitely long warranty periods, ask how any warranty claim will be handled by the company and for a clear statement of what is and isn't covered. And of course, ask if your tank manufacturer is a member of their industry organization. To find out if they are, you can look for their name on ARMA's website www.watertanks.org.au or www.rotationalmoulding.com.

Rebates and subsidies on home water

Most local authorities provide some incentives to help you make a commitment to the planet by reducing your water usage. We've included a list of places for you to go to find out more about what's available in your area...

QUEENSLAND

State: www.nrw.qld.gov.au/water/saverscheme/index.html

Beaudesert Shire: www.bsc.qld.gov.au/council_information/Waterwise/Waterrebates.asp

Brisbane City Council: www.brisbane.qld.gov.au/BCC:BRISWATER::pc=PC_1460

Gold Coast City Council: www.goldcoast.qld.gov.au/t_gcw.asp?PID=3992

Ipswich City Council: www.ipswichwater.com.au/environment/rebate/latest_news.php

Logan City Council: www.logan.qld.gov.au/LCC/residents/water/051209WaterSavingIncentives.htm

Pine Rivers Shire: www.prsc.qld.gov.au/c/prsc?a=da&did=1162798&pid=1128140783

Redcliffe City Council: www.redcliffe.qld.gov.au/water4.htm#Redcliffe%20Water%20rebates

NEW SOUTH WALES

Sydney: www.sydneywater.com.au/SavingWater/RainwaterTanks/Rebates.cfm

AUSTRALIAN CAPITAL TERRITORY

Canberra: www.thinkwater.act.gov.au/tune-ups_rebates/rainwater_tank_rebate.shtml

VICTORIA

State: www.ourwater.vic.gov.au/ourwater/dsenowof.nsf/Home+Page/OurWater~OurWater_home?open

Northwest: www.dse.vic.gov.au/dpi/nrenfa.nsf/LinkView/093E600D64A4A57BCA2571E9001767F06163175BD669CCD84A256DEA00120A0E

SOUTH AUSTRALIA

State: www.sawater.com.au/SAWater/YourHome/SaveWaterInYourGarden/Rainwater+Tanks.htm

WESTERN AUSTRALIA

State: <http://portal.water.wa.gov.au/portal/page/portal/WiseWaterUse/WaterwiseRebates/WhatProductsCanIGetARebateFor/DomesticRainwaterTanks>



Australian and New Zealand standards

It's vital you know your poly water tank is made of the right material for your family's health and for local conditions.

Ask your agent or manufacturer if your tank is certified to www.saiglobal.com/shop/Script/Details.asp?docn=AS073377606XAT AS/NZS 4766 : 2006 Polyethylene Storage Tanks for Water & Chemicals. If it is they will be able to show you a copy of their certification or the tank will be clearly marked as being licensed to the standard. The standard isn't mandatory at the moment, however if your tank is not certified, here are some great questions to ask before you buy to ensure your tank is still a quality product:

Where is the tank made?

Some imported tanks may be made from material that isn't suitable, may not have any warranty or include fittings that can't easily be replaced.

Does the plastic contain UV protection specifically for our local climate?

Our local climate can be incredibly harsh. Polyethylene is ideal when it contains that right ingredients to make it last.

Is the material used in the tank certified as made from plastic that's safe for drinking (potability)? Has the colour & thickness of the plastic in the tank been calculated according to the requirements of the standard?

If light can get into your water tank it can help algae grow, which can affect the health of your family. The standard gives manufacturers guidelines about the thickness and colour of material. Properly certified polyethylene is safe for drinking water, however some imported tanks may not be made from material which has been properly tested.

Is the stated capacity of the tank calculated according to the Standard?

The calculation in the standards ensures manufacturers can only state the actual amount of water that can be stored in the tank once fittings have been installed.

Does the manufacturer maintain a product trace system?

Good manufacturers will be able to trace your product to its source material, have records of when and where it was made and what tests it underwent before leaving the factory.

Is there a warranty with the tank?

Don't be seduced by lengthy warranties. Carefully read the conditions and installation instructions before you buy so you know your rights and obligations, should you need to make a claim.

Has the design of my tank been tested according to the standard?

Like any material, plastic has some limitations when it's placed under stress (by filling). It's important your tank has been properly designed and tested to ensure it is fit for purpose.

How do I maintain my tank & installation to ensure my warranty is valid?

Your manufacturer should give you written guidelines to help you maintain the base, fittings and installation of your tank so it will last and continue to provide excellent quality water storage.

Is it made by a member of Association of Rotational Moulders Australasia?

All the companies that advertise their tanks on this site are members. You can check if your manufacturer is a member by going to either www.watertanks.org.au or calling us on **+61 (0) 500 567 808**.

20 top water-saving tips for your home

- Checking for leaks in taps, pipes and dishwasher hoses is an easy way to reduce water wastage. Remember, one leaking tap can waste more than 2,000 litres a month.
- There's no need to leave the tap running while you brush your teeth. Simply wet your toothbrush before you begin and use a glass of water to rinse your mouth.
- The most water efficient methods for cooking vegetables are microwaving, steaming or using a pressure cooker. You can also cut down on water loss by using tight lids on pots and simmering instead of boiling rapidly.
- Installing water efficient taps or tap aerators is a great, inexpensive way to cut your water usage without you even noticing.
- Put the plug in the sink when washing your hands instead of holding them under running water.
- Thaw frozen foods before you need them or use the microwave instead of placing them under running water.

Prevent taps from leaking by turning taps off lightly and replace washers as soon as they begin to leak.

- Automatic dishwashers can use up to 40 litres of water per load. By using a dishwasher with at least a 3 star/AAA rating¹, you can get this figure down to 18 litres per load and still get the kind of sparkling clean dishes you're used to.
- Wait until you have a full load in your dishwasher before using it. This saves water and energy, and reduces the amount of detergent entering the sewerage system.
- Keep a container of water in the fridge so that you won't need to run the water down the sink until it's cool enough to drink.
- Washing fruit and vegetables in a half-filled sink instead of under running water is a great way to cut back on water wastage.
- Rinsing your dishes in a plugged sink rather than under a running tap saves water and is just as easy and effective.
- Use a sink strainer.
- Try to use phosphate-free, eco-friendly detergents and cleaning products. There's a great range to choose from these days and they're much better for our environment.
- Remember to regularly clean the lint filter on your washing machine.
- Most washing machines have a load adjustment button or dial, so try to set this to match the amount of washing you're doing. If your machine doesn't have a load adjustment function, try to wait until you have enough washing for a full load.
- Installing one of the latest 3 star/AAA rating showerheads can give you a great shower and save you around 10 litres of water a minute. They also save you energy costs as you'll use less hot water.
- To rinse your razor, run a little water into a plugged sink. Rinsing your razor under a running tap wastes lots of water.
- Electric or fuel powered leaf blowers work more efficiently than hosing down paths and driveways.
- Pool covers reduce the amount of water you need to keep your pool full and running efficiently.



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