GUIDANCE ON USE OF RAINWATER TANKS
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Preventing mosquito breeding

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Mosquitoes and other nuisance insects need to be excluded from rainwater tanks. Water ponding in gutters also needs to be prevented as it can provide breeding sites for mosquitoes and could lead to eggs being washed into tanks (Northern Territory Public Health Regulations 2007 require that gutters should be installed and maintained to prevent ponding).

Unless in use, all access points, excluding the inlet and any overflows, should be kept shut with close fitting lids that will prevent mosquito access. Inlets and overflows should be covered with closely fitting removable insect-proof screens. Queensland (2005) and Northern Territory (2007) Regulations specify the characteristics of the screens as follows:

- Queensland – brass, copper, aluminium or stainless steel gauze not coarser than 1 mm aperture measure
- Northern Territory – brass or bronze wire not coarser than 7 meshes to the centimetre (each way) and of 33 gauge wire.

Mosquito control

By far the preferred approach for managing mosquitoes and other insects is to keep them out of tanks. In addition, rainwater should not be allowed to pool in containers or on surfaces below tank outlets or taps, as this can also provide a breeding site.

Detection of mosquito larvae (wrigglers) in rainwater tanks indicates the presence of an opening through which female mosquitoes can enter and lay eggs or the entry of eggs laid in ponded water collected in roof gutters. Gaps can occur:

- in mesh used to protect inlets and overflows
- around inspection and access points
- between the roof and main body of the tank
- in the tank itself due to corrosion or physical damage.

If mosquitoes or other insects are found in rainwater tanks, the point of entry should be located and repaired. As well as preventing further access, this will prevent the escape of emerging adults. Gutters should be inspected to ensure they do not contain ponded water, and cleaned if necessary.

There is no ideal treatment to kill mosquito larvae present in rainwater. The two commonly recognised treatments involve adding chemicals (medicinal or liquid paraffin or kerosene) to tanks, which defeats one of the advantages of collecting rainwater. In addition, problems have been reported with both types of treatment.

As a last resort, tanks can be treated by adding a small quantity of medicinal or liquid paraffin or domestic kerosene. The recommended dose of kerosene is 5 mL or one teaspoon for a 1 kL tank up to 15 mL or 3 teaspoons for a 10 kL tank. When using paraffin the dose is double that used for kerosene.

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Note: Commercial or industrial kerosenes, for example, power kerosene for tractors etc., **should not** be used in rainwater tanks.

Paraffin can be used in all types of tanks, but there have been reports of coagulation after a time and of deposits forming on the sides of tanks.

Kerosene is not suitable for use in tanks coated with Aquaplate®and may not be suitable for use in tanks constructed of, or lined with, plastic. If in doubt, consult the manufacturer of the tank. Used carefully, kerosene will not result in risks to human health, but excess quantities can taint the water and very high doses can be poisonous to humans. Kerosene added to the surface will not mix through the body of rainwater in the tank and it will either evaporate or be washed out of the tank by overflow. Kerosene should not be added to tanks when water levels are low.

If excess quantities of kerosene are added to the point that taste is affected, the only solution is to drain and clean the tank.

Internationally, it has been suggested that larvicides, such as temephos, s-methoprene and Bti (Bacillus thuringiensis), could be used in rainwater tanks (WHO 1997). However only the larvacide s-methoprene is registered for use in rainwater tanks by the Australian Pesticides and Veterinary Medicines Authority.

Note: Vegetable oils **should not** be used as they can become rancid after a while.

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