



MINISTRY OF HEALTH and SENIORS  
DEPARTMENT OF HEALTH  
Environmental Health

*"Healthy People in Healthy Communities"*

*Guidance Document W01*

# Safe Tank Water







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




## Preventive Maintenance

Regular maintenance of your roof water catchment and tank is important to keep your water safe, clean and fresh. Conduct a survey of your water system and check the following:

### Roof Catchment

-  Trim any overhanging trees to prevent leaves entering your tank. Cover the rainwater down pipes with wire screens (“pineapples”) and clean these periodically to remove debris.
-  Keep your roof clean and painted. Tightly seal all rain water down pipes when cleaning and painting the water catchment. Do not remove until after the first rain shower.
-  To clean the roof, power wash or use a wire brush to remove old paint and fungal growth
-  Before applying paint, wash the roof with a 50/50 solution of regular unscented bleach and water and then apply an approved roof catchment paint.

### Water Tank

-  Clean your tank as often as necessary to prevent sediment accumulation (by law every 6 years). Studies have shown that most contamination settles out of the water into the sludge.
-  All overflow pipes should be 4 inches above ground and screened with fine mesh wire. Ensure that the tank top is tight fitting and kept free of sources of contamination.
-  Avoid refilling tanks that are low in water and high in sediment. The water may become unsafe to drink because contaminants contained in the sludge can be reintroduced into the water.  
**WHEN YOUR TANK IS LOW IN WATER, TAKE THIS OPPORTUNITY TO CLEAN YOUR TANK**
-  Aeration (adding oxygen) should be performed if there is very little turnover or if the water tastes flat. This can be achieved by setting your garden hose nozzle on fine spray and directing it onto the surface of the water in your tank. Allow at least a few hours for ample turnover. (Depending on size of tank).
-  Well water is prohibited; it can only be used for your toilet and laundry facilities (cold water only).



# Disinfection of Tank Water



Bermuda water tanks are open to the environment and tank water will contain micro-organisms from dust, vegetation and faecal matter (e.g. from birds), all of which landed on the roof and were washed into the tank. Some of these micro-organisms can cause gastro-intestinal disease or symptoms (e.g. diarrhea)



**Consider tank water to be a “raw” water source. Similar to raw food which you cook or wash to eliminate harmful bacteria, you should disinfect the water you use for drinking and food preparation to kill any micro-organisms of health significance. This is ESSENTIAL for any susceptible individuals, such as babies, the elderly, people who are immunocompromised.**

- Disinfect your tank supply using one of the following methods:-  
**Chlorination (4oz of household bleach per 1000 gallons of water)**
  - Note: Chlorination should only be performed if water is clear and tank relatively free of sludge.
  - Dosing the tank periodically with bleach only provides disinfection for a very short period of time (a few days depending on level of contamination and rainfall)

### **Formula for Calculating Volume of Water**

*Length(ft.) x Width (ft.)x Depth(ft.) of Water x 6.25 = No. of Gallons*

- Filtration/UV light. This is the most popular method for small household water systems – there are two types of systems available:
  - Point of Use systems, which treat the water that you use for drinking and food preparation. They are usually installed in the kitchen and will have a separate tap which provides your treated (disinfected) water.
  - Point of Entry systems, which treat all the water in your house.
  - These systems require regular maintenance of the filters and UV light.
- Distillation - home systems are available that produce water of high purity.
- Boiling – bring to a rolling boil for 5 minutes, then place boiled water in a clean container and refrigerate.



**Disinfection methods can be combined for best efficiency e.g. chlorinate every 2 months plus use a filtration /UV device in your kitchen for water for drinking and food preparation use.**



**Water used for preparing baby formula should ALWAYS be boiled**



# Treatment of Common Water Problems

## **Stagnation**

Stagnation occurs when there is depletion of oxygen in your water, and the water smells foul, like rotten eggs. If the water tank is clean, then chlorinate the water, as outlined above and aerate the water to improve its quality. Aeration can be achieved by setting your garden hose nozzle on fine spray and directing it onto the surface of the water in your tank. Allow at least a few hours for ample turnover. (Depending on the size of tank)

## **Roof Catchment Paint Contamination**

If roof catchment paint contaminates your tank water, giving it a cloudy appearance and/or an objectionable taste, it should be discarded.

## **Mosquito / Fly Larvae**

Prevent insects from entering your water system by screening all openings at ground level. Check gutters for standing water.

## **Salty Water**

Block gutters prior to major storm events to prevent entry of salt water into your water system. Dilute the water tank with fresh water to address minor salt contamination.

## **Rust Coloured Water**

Rusty pumps, pressure tanks and galvanized or cast iron pipes can cause water to have a brown discoloration. This is usually most evident when you open the water tap first thing in the morning, or if the water supply has not been used for a long period. Allow the water to run until it becomes clear. The Department of Health recommends the replacement of such pipes or equipment.



## Water Testing Service

Environmental Health, together with the Central Government Laboratory, provides a water testing service for those with water quality concerns.

Two types of testing are available - bacterial or chemical, depending on the concern

**Bacterial testing** of water involves looking for groups of micro-organisms called indicator bacteria:

- **Total Coliforms**, which indicate if the water has been disinfected adequately, and
- **E. coli**, which indicate if the water is contaminated by bacteria of faecal origin.

Bacterial testing of **untreated** tank waters is not recommended, as the microbial water quality can change rapidly depending on weather e.g. rain and contamination sources e.g. birds, windblown dust.

Studies have shown that approximately 66% of Bermuda's residential tank waters contain *E. coli*, an indicator of faecal contamination, at the time of sampling.

Additionally 90% of residential tank waters have been found to contain Total Coliforms, which are not necessarily of health significance, but are used internationally as a measure of water quality.

If you have not disinfected your water, it is very unlikely to meet the bacterial standards for acceptable drinking water quality.

**The Department of Health strongly recommends disinfecting tank water used for drinking and food preparation. Once the water has been disinfected, bacterial testing can be performed to check that the disinfection process is effective**

**Chemical testing** of tank water is rarely necessary.

The chemical testing performed consists of tests (chloride, hardness, nitrate, pH) that can indicate whether water is rainwater, well water or piped water. They can also indicate whether water has been contaminated by alkaline based paints used for painting/sealing roofs and tanks.

**You would normally only need chemical testing if you think you may have well water in the tank, a cross connection with well water, if the roof/tank have been cement washed/painted, or if there is any other specific complaint/concern**



## **Instructions for having your water tested**

- Decide what type of testing you require – either bacterial, chemical or both. Different types of sampling bottles are required for bacterial and chemical testing.
- Obtain sterile bottles from Environmental Health. For each type of analysis (bacterial and chemical), 2 sample bottles are provided in the sampling kit. Write on both bottle labels; your name, address and contact number.
- Fill out the accompanying Water Analysis Form. Both bottles are needed for testing and are considered as 1 sample.
- Water samples should be collected from the kitchen cold water tap. Allow the water to run out of kitchen tap for 60 seconds before filling the bottles.
- Hold bottle near the base (do not touch the inside of the container or cap), fill to line and immediately close the bottle cap.
- Transport samples in a cooler bag, and deliver **immediately** to Environmental Health
- You can receive your results by mail, email or telephone. Please specify which you prefer on your water submission form and enter details clearly. Results will be available within a week.

**NB:** If there is to be any delay in the delivery of the sample it must be refrigerated to prevent inaccurate results. The sample must be brought in the same day it is collected.

**SAMPLES WILL ONLY BE ACCEPTED**

**MONDAY – WEDNESDAY**

**8:30 a.m. – 4:00 p.m.**

*With the exception of Public Holidays*

*In these circumstances please call 278-5333 for drop off days*

**There is a fee for all water samples**

