BEFORE YOU CLEAN YOUR CISTERN

Check for Defects
Conduct visual inspection for cracks and other defects in the walls, roof, gutters and cover.

Ensure your cistern has the following:-

A Cistern Manhole Cover.
This should be made of durable, non-porous material and should fit tightly to prevent the entry of insects and foreign matter into the cistern.

A Coping or Lip
This should surround manholes to prevent the entry of run-off water and contamination of cistern water.

Down Spouts and Overflows
These should be fitted with screens to minimise debris and to prevent entry of insects.

Downspout Diverter
It should be installed to allow for the rinsing of the roof catchment before collection of rainwater begins, especially at the beginning of rainy season. This reduces the amount of debris and contamination that enters a cistern.

NEVER COLLECT WATER FROM THE FIRST RAINFALL.

CLEANING YOUR CISTERN

Clean Cistern Once Every Year
Cisterns should be thoroughly cleaned at least once per year. Depending on the amount of sediment, more frequent cleaning may be warranted.

What is Sediment?
Sediments are organic materials that settle to the bottom of the cistern. The presence of sediment reduces the effectiveness of chemicals used in disinfection, allowing micro-organisms to grow in the cistern.

CISTERNS SHOULD ONLY BE CLEANED BY A PROFESSIONAL.

A cistern is a confined space and using cleaning agents without proper training for such conditions may result in injury or death. Toxic fumes and gases and limited oxygen supply in the cistern make it a dangerous environment.

Handle All Chemicals with Care.
Chlorine bleach should be handled with care.

- It can discolour clothing.
- It can cause injury or irritate upon contact with eyes and skin. If this happens rinse affected areas with water for 10 minutes, and seek medical treatment if necessary.

NEVER DISINFECT A DIRTY CISTERN, ALWAYS CLEAN A DIRTY CISTERN BEFORE DISINFECTION.

DISINFECTING YOUR CLEAN CISTERN

What is Disinfection?
It is the killing of bacteria and other micro-organisms.

A cistern should be disinfected:

- After it is cleaned.
- After every heavy rainfall.
- Every time you have it filled up.
- At least every other week.

Disinfecting:
The simplest and cheapest means of disinfecting a cistern is by chemical treatment using fragrance-free domestic chlorine bleach, e.g. Purex or Chlorox.

Method of Disinfection using Chlorine Bleach

Add 3 fluid ounces (90 ml) of chlorine bleach to every 1000 gallons of water to a sediment free &/ clean cistern

If, after 30 minutes, there is no residual odour of bleach in the water, add half the amount of chlorine used in the first application to the cistern water.

Lack of residual bleach odour means that the amount of chlorine in the first application was not enough to disinfect the cistern.

Check again 15 minutes after the second treatment to ensure there is a residual odour of bleach.

A residual bleach smell is an indicator that the water has been satisfactorily disinfected.

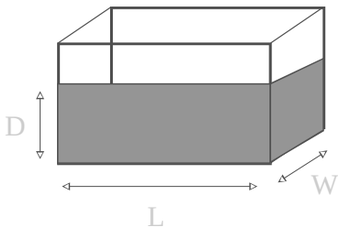
CALCULATIONS FOR YOUR CISTERN

To Calculate the Volume of Water in Your Cistern
Measure the length and width of the cistern and the depth of the water to the nearest foot. (The depth of the water can be obtained by using a sanitised stick or paddle.)

Then multiply the length of cistern by the width of the cistern by the depth of water . Then multiply the total by 7.5 to calculate the amount of gallons in a cistern.

OR

Volume of water = L x W x D x 7.5 (in gallons)



An example:
For a cistern measuring 12ft length x 12ft with a depth of water of 5ft.

To calculated the volume of water. You would perform the following calculations.

12 x 12 x 5 x 7.5 = 5,400 gallons

Volume of bleach required = $\frac{5400 \text{ gallons} \times 3 \text{ fluid ounces}}{1000 \text{ gallons}}$
= 16.2 fluid ounces (oz)

Answer
16 oz. of bleach would be used to disinfect the cistern

CONTAMINATION THREATHS

Toxic/ Harmful Chemicals
Do not store chemicals on or near a cistern.

Human / Animal Waste
Human or animal waste may contain organisms that cause diseases such as cholera, typhoid fever, dysentery and other gastrointestinal illnesses. These diseases can be spread by water that has been contaminated with human or animal waste.

Cross Connections to Wells.
Some householders use well water for their laundry or for flushing toilets. This is an economical measure.

However, if there are cross-connections between a contaminated well and your cistern **or** you are using the same piping for both sources, your drinking water supply can be severely contaminated and may cause you to become ill.

Testing of Cistern Water
Cistern water can be tested for the presence of bacteria. Specifically, water is analysed for the presence of faecal coliform bacteria including *E. Coli* as these bacteria are known indicators of faecal contamination.

If testing reveals the presence of these bacteria, the water should NOT be used for drinking and domestic purposes.

Water can be tested at the DEH or Water Authority for a small fee.

USE AFTER A DIASTER

If you decide to use your cistern water in the event of a natural disaster such as a hurricane, it is important that you disinfect all potable water before use (i.e. water used for drinking, cooking, bathing, etc.).

Methods of Disinfection
Boiling: The water must be brought to a rolling boil for 1 minute to ensure disinfection.

Chemical Treatment: The simplest method of chemical treatment is the use of domestic chlorine bleach. To ensure sterilization, add two drops of bleach for each gallon of water *(an empty ball point pen cover may be used as a dropper).*

For drinking purposes, the residual bleach odour will dissipate by allowing the water to sit for a while or by stirring the water with a clean, sanitized spoon to allow even distribution of the chlorine. This action releases excess chlorine, making the water more palatable for drinking.

Commercially prepared chlorine tablets are also available at pool suppliers. Follow the directions on the label.

Brochure produced by DEH and Water Authority Cayman.

For further information contact the following agencies at addresses listed below

Grand Cayman
Department of Environmental Health
P.O. Box 1820 GT
CI Environmental Center
Grand Cayman, Cayman Islands
KY1-1109
Tel: 345-949-6696
Fax: 345-949-4503

Cayman Brac & Little Cayman
Department of Environmental Health
P.O. Box 212 Stake Bay
Cayman Brac, Cayman Islands
KY2-2101
Tel: 345-948-2321
Fax: 345-948-2543

Water Authority Laboratory
Tel: (345) 814-2141

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CARE & MAINTENANCE OF CISTERNS

GUIDELINES FOR A SAFE WATER SUPPLY

Cayman Islands
Department
of
Environmental Health