NOVA SCOTIA

# How to Clean and Disinfect Your Cistern

## After an Extreme Event

After an extreme event such as a wildfire or flood, it is normal to have concerns about the safety of your home, property, and drinking water. Smoke, soot, ash, heat, firefighting activity, mould growth, and water or fire damage to buildings can affect your drinking water supply.

This guide will help homeowners who use cisterns for drinking water understand what to do if their cistern is damaged or if their water looks, tastes, or smells different. It will explain:

- **How to determine the size of your cistern**
- **How to clean your cistern**
- **How to disinfect your cistern**
- **Where to find additional resources**

### SAFETY

**DANGER:**
**NEVER ENTER A CISTERN.**

Cisterns are watertight containers designed to protect and store potable water. You should never enter a cistern unless you have been trained on confined space entry.

### Before You Start

- Make sure you have another source of safe drinking water.
- If there is water in your cistern, drain before cleaning.
- Inspect your cistern and associated plumbing for signs of damage.
- Gather supplies:
  - Stiff brush or pressure-washer
  - Food-grade detergent
  - Unscented, liquid household bleach (5.25% sodium hypochlorite)
  - Safe water for rinsing and refilling
- If you do not have enough safe water for the cleaning and disinfection process, contact a potable water hauler.

# Estimate Your Cistern's Volume

The amount of disinfectant you need depends on the volume of water your cistern can hold. If you don't have this information, you can estimate it using the examples below, depending on whether you have a box or a cylindrical style of cistern.

## Box Cistern

To estimate how much water your box cistern can hold, you'll need the following measurements in metres: length (L), width (W), and height (H).

Take these measurements and multiply them by each other: L x W x H. Then multiply the result by 1,000. The answer will tell you how many litres of water your cistern can hold.

## How to calculate the volume of a box cistern in litres

### 1. Measure

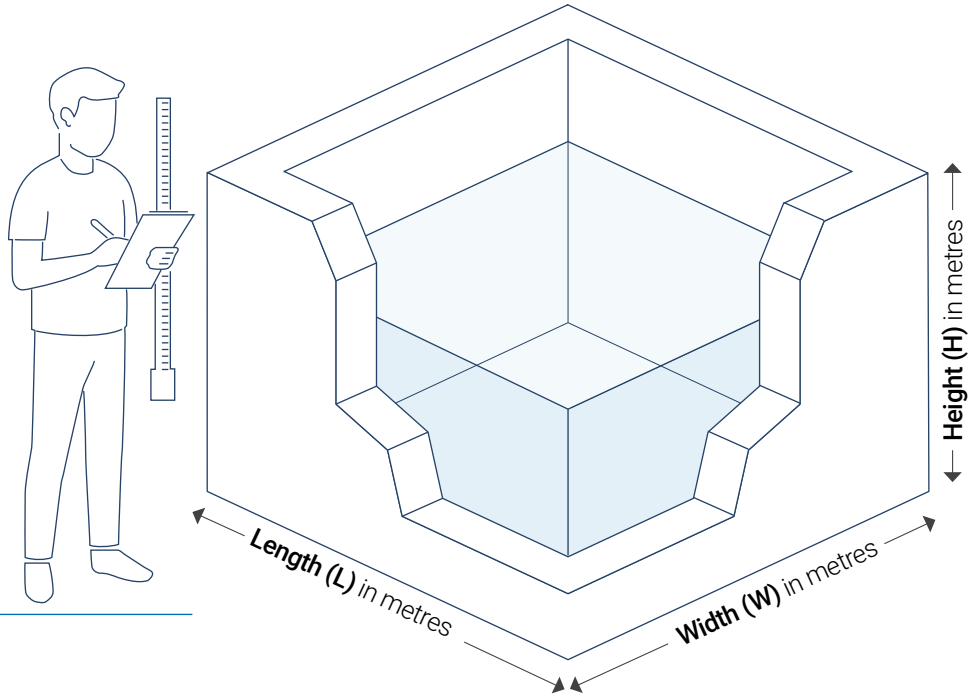
Take measurements of **L**, **W**, and **H** in metres.

### 2. Multiply Dimensions

Calculate the volume in cubic metres:
**L x W x H**

### 3. Convert to Litres

Multiply by 1,000.
(result is in Litres)




## Example

If your box cistern is 2.5 metres long, 1.7 metres wide, and 1.5 metres high:

**Volume of Water = L x W x H**

= 2.5m x 1.7m x 1.5m

= 6.38 $m^3$

= 6.38$m^3$ x 1000 = 6380 litres

**The volume of water your cistern holds is 6380 litres.**

## Cylindrical Cistern

To estimate how much water your cylindrical cistern can hold, you'll need the following measurements in metres: radius (the distance from the centre of the cylinder to the edge) and height.

Take the measurements and plug them into the following formula:

$V = \pi \times r^2 \times h$

where:

V = volume, π = pi (3.14), r = radius, h = height

The answer will tell you how many litres of water your cistern can hold.

## How to calculate the volume of a cylindrical cistern in litres

### 1. Measure

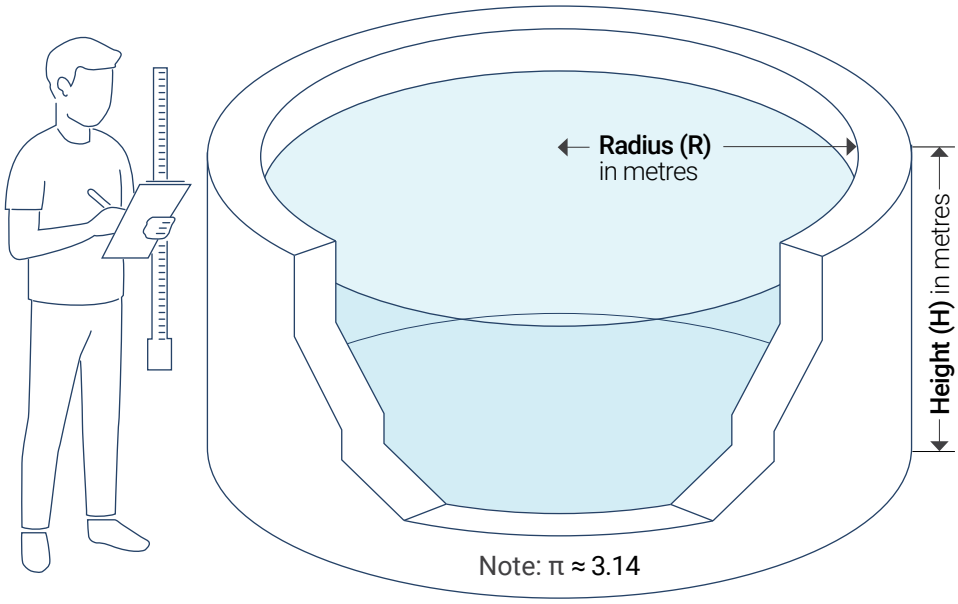
Take measurements of **r**, and **h** in metres.

### 2. Calculate the volume metrics

Calculate the volume in cubic metres:
**$V = \pi \times r^2 \times h$**

### 3. Convert to Litres

Multiply by 1,000:
(result in Litres)




## Example

If your cylindrical cistern has a radius of 1.1 metres and is 1.8 metres high

Step 1: $1.1m \times 1.1m = 1.21m^2$

Step 2: $1.21m^2 \times 3.14 = 3.8m^2$

Step 3: $3.8m^2 \times 1.8m = 6.84m^3$

Step 4: $6.84\ m^3 \times 1000 = 6840$ litres

**The volume of water your cistern holds is 6840 litres.**

## Clean Your Cistern

1. Scrub inside surfaces using a stiff brush or pressure washer with food-grade detergent.
2. Rinse with safe drinking water.
3. Drain the rinse water.
4. Remove any sediment with a wet dry vacuum if needed.

## Disinfect Your Cistern

**A. Prepare**

- Bypass water treatment devices.
- Turn off the water heater.

**B. Add Bleach While Filling**

Add safe drinking water to the cistern.
As it fills, add bleach:

**Bleach dose:**

| **Cistern Volume** Every 1,000 litres | **Bleach Required** **1 litre unscented household bleach** |
|---|---|

It will mix as the cistern fills.

**C. Run Taps**

Turn on each tap supplied by the cistern until you smell chlorine. Then turn them off.

**D. Top Up**

Top up the cistern to completely fill it

**E. Wait**

Let the chlorinated water sit for **at least 6 hours**.

**F. Drain and Flush**

- Drain chlorinated water away from plants, streams, and septic systems.
- Refill with safe drinking water.
- Run indoor taps for **5 minutes each**.
- Turn the water heater back on.
- Restore water treatment devices following manufacturer instructions.

## Test Your Water Before Drinking

Test for: • Total coliforms • *E. coli*

Do NOT drink the water until lab results confirm it is safe.

## Additional Resources

**NS Using well water after a wildfire:**

https://emergencyinfo.novascotia.ca/wildfire

**NS Using well water after a flood:**

https://emergencyinfo.novascotia.ca/floods

**The Drop on Water:**

https://novascotia.ca/nse/water/docs/Drop_on_Water_English.pdf