



How to Clean a Vertical Water or Rainwater Collection Tank

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Regular cleaning of a water storage tank is as important as knowing how to properly clean one. Modern tanks come in a variety of shapes, sizes and manufacturing material options, but the steps to annual maintenance are relatively the same. It is a responsibility of tank ownership and one that should be done sooner rather than later in order to avoid a larger, more toilsome task.

If you own a rain barrel or bulk rainwater collection tank, full cleaning is recommended at least once a year. The storage tank should be inspected frequently for signs of infiltration by debris or pests, contamination in the forms of biofilms and algae, and it should be cleaned if the inspection reveals poor conditions. Engaging in this type of care will ensure the container remains in top working order and continues to capture and provide the quality rainwater resource you want for your intended applications.

Steps to Cleaning Your Tank

Cleaning a water storage tank is a straightforward process that can be accomplished in five (5) steps.

Step 1: Determine Time for Cleaning

Prior to cleaning the rain tank, first determine when it should be cleaned. Rainwater harvesting tanks do not have the exact same guidelines as a potable drinking water tank unless it is used for that purpose. Therefore, the cleanliness standard and requirement may vary.

- **Tanks for Irrigation:** Tanks used for irrigation in watering plants, lawns and landscapes require the lowest level of cleanliness for the tank. Irrigation tanks should still be cleaned at least once a year. Infiltration by organic matter (*plant debris, animal tissue, remains, and droppings*) may not be harmful to irrigation purposes but beneficial to plants by providing valuable nutrients. Disinfection of the tank and/or water will not be required.
- **Tanks for Appliances / Equipment:** Tanks used for appliances or work equipment require a moderate level of cleanliness. Tank infiltration by organic matter and sediments can clog system plumbing and/or affect normal equipment operation as well as running service life. Clean at least once per year or when inspection reveals it is needed. Disinfection may be required or recommended.
- **Tanks for Drinking, Cooking, Bathing:** Tanks used for potable uses require the strictest level of interior tank cleanliness and water treatment. If the tank has been infiltrated by foreign matter, animals, sediments, chemicals or other particulates, cleaning and/or treating the water is likely needed. Tank cleaning and disinfection is required to achieve and maintain potable quality rainwater and should occur once a year at minimum or whenever inspection indicates it is needed.

Pro Tip

Rainwater harvesting containers positioned in open sunlight and made of light-colored material often require more frequent maintenance due to algae build up. Tanks placed away from sunlight and made of dark colored material are significantly more resistant to algae growth and will require cleaning maintenance less often.

Step 2: Drain the Tank

This step is easier for lower capacity tanks. The unwanted, potentially dirty water in the tank needs to be drained so the tank interior can be cleaned and drained in a manner that will be non-damaging to the surrounding environment or infrastructure. A few hundred gallons - let alone a thousand gallons - of unclean rainwater is a significant volume to discharge.

If necessary, use a hose to displace the water and runoff accordingly or use it to water nearby vegetation. Always discharge water away from houses and other structures in a way that is safe and responsible. Depending on the total volume, draining may need to be done at several different times to allow the ground time to absorb the water.



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Step 3: Clean the Empty Reservoir

With all water removed, the tank interior can now be cleaned. Use a soapy water mixture along with a coarse non-metal bristle brush to scrub the tank walls. Use of an extendable rod with adjustable head is recommended for access in larger tanks and for difficult to reach areas. A pressure washer is a good tool that can help make light work of cleaning a tank.

Use a mild bleach (*sodium hypochlorite*) or baking soda (*sodium bicarbonate*) solution to assist in removing algae or sediment deposits stuck on interior walls. Entering a tank being cleaned with chemicals is never recommended unless proper protective equipment is worn, and even still, we cannot recommend it personally due to safety hazards. Perform final rinses with pure, clean water and allow it to drain. Ensure all soapy and unclean water is fully rinsed away – a thorough 3-times rinse is often satisfactory.

Pro Tip

Non-potable tanks are finished at this step and can satisfactorily return to normal use. Non-potable rain tanks are clean if visual inspection indicates they are free of algae, silt, biofilm scum, and sediment buildup, and free of physical organic matter.

Step 4: Disinfect Tank and System (*potable applications*)

Disinfecting your tank is required if the water will be used for potable applications such as cooking, drinking, or bathing. It is also recommended if rainwater will be used for appliances, toilets, or other equipment.

- To disinfect a rainwater supply so it is safe to drink, use 40 mL consumer grade, NSF approved liquid bleach at 5.25% active strength for every 100 gallons of rainwater. This is a direct ratio and can be modified according to your tank's exact capacity; e.g., 100 mL for 250 gallons; 4 mL for 10 gallons; etc.
- To shock-chlorinate a rainwater supply, use 1 quart consumer grade, NSF approved liquid bleach at 5.25% active strength for every 250 gallons of rainwater. This is a direct ratio and can be modified according to your tank's exact capacity; e.g. 4 quarts for 1000 gallons; 1.6 cups for 100 gallons; etc.

In step-by-step format: (1) Let the rainwater reservoir fill prior to use; (2) Add required volume of bleach; (3) Open taps to allow bleached water to fill plumbing connected to the rain tank; (4) Wait 24 to 48 hours for chlorine levels to diminish as disinfection occurs; (5) Validate water is fully disinfected and safe for use.

Step 5: Validate Tank is Clean or Repeat

If disinfection was performed, use test strips or laboratory analysis to verify that the water quality is at the desired level. If chlorine values remain high, allow more time to pass prior to use. If test results indicate bacteria is present, the cleaning and disinfection process should be repeated. A valid water quality test indicates the rain tank has been successfully cleaned.

Pro Tip

As an alternative to disinfecting the harvested rainwater with bleach, an ultraviolet water treatment system can be used to actively disinfect the rainwater prior to its being used.

Takeaway | Cleaning Your Water Storage Tank

Cleaning your water storage tank may be an inconvenient task but it does come with its reward. In the end, it is rewarding to know the most integral part of your rainwater harvesting system has been fully inspected, fully cleaned, and returned to service. A clean tank is necessary for a healthy system that provides rainwater at the right level of quality and not one simply supporting the abundant growth of algae.