Disinfecting a water tank

Background
In many remote areas water tanks are essential to provide a potable household water supply. This BUSH TECH shows how to clean up the water in water tanks by disinfection. Chlorination is the cheapest and easiest way to disinfect water and is very efficient at killing harmful bacteria.

When should I disinfect the water tank?
All water collected in household tanks will contain some bacteria. However, if the system is well maintained, the risk of the bacteria causing sickness, such as gastroenteritis, is small.

A water tank should not need to be regularlydisinfected. A tank should be disinfected if, for example:
- the tank has been left for a long time without maintenance, such as leaving an outstation for the wet season;
- dead animals are found in the tank.

Step 1: How much water is in the tank?
Before adding any chlorine to the water tank, you will need to find out how much water there is to treat. There are three methods to work out the volume of water in your tank.

Method 1
On the side of poly tanks, there is a label that describes the maximum capacity of water that can be stored in the tank. For example, if the label on the tank says it can hold 8000 litres and it is half full – then you have approximately 4000 litres.

Method 2
If you have a galvanised steel tank you can work out how much water is in your tank by measuring the height of the water and the diameter of the tank (see figure 1).

\[ H = \text{Height of the water level in the tank. To find out the height, measure (in metres) from the bottom to the water level.} \]

\[ D = \text{Diameter of tank (in metres). The diameter is the length across the middle from one side to the other. The arrow across the top in figure 1 shows the diameter. It can be measured by getting up on top of the tank.} \]

If you can’t get on top of the tank, a good way to measure the diameter is to lay two star pickets on the ground (see figure 2). Measuring the distance between the star pickets will give you the diameter.

For example, if the diameter is 1.83 and the height of the water level is 1.95 the answer would be:

\[ D \times D \times H \times 0.785 \]

Volume of water (in litres) = \( D \times D \times H \times 0.785 \)

For example, if the diameter is 1.83 and the height of the water level is 1.95 the answer would be:

\( D \times D \times H \times 0.785 \) is 1.83 x 1.83 x 1.95 x 0.785 = 5.12 kl which is close enough to 5000 litres.

After measuring the volume of water in this tank, Seth added 1 litre of bleach.
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Method 3

The third method is to measure the height of the water in the tank (as before) and the distance around the tank – the circumference. Run a piece of string around the base of the tank and measure the length of the string.

Figure 3

![Diagram of a water tank with measurements](image)

Volume of water (in litres) = \( H \times \text{circumference} \times \text{circumference} \times 80 \)

For example, if the \( H \) (height) is 1.95 metres and the \( C \) (circumference) is 6.3 metres:

\[ \text{Volume} = 1.95 \times 6.3 \times 6.3 \times 80 = 6000 \text{ litre tank} \]

**Step 2: How much of which chlorine?**

Bleach and chlorine are disinfectants. The bleach should be plain (not lemon or pine smelling) household grade that can be found in a general store. The chlorine for water tanks is the same as that used in swimming pools – except you only use a little bit. The active constituent in both the bleach and liquid chlorine is sodium hypochlorite. If you use powdered chlorine, the active constituent is calcium hypochlorite. (See below for quantities)

<table>
<thead>
<tr>
<th>Aim for 5 mg/L dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of chlorine</strong></td>
</tr>
<tr>
<td>Plain household bleach</td>
</tr>
<tr>
<td>Liquid pool chlorine</td>
</tr>
<tr>
<td>Powder pool chlorine</td>
</tr>
</tbody>
</table>

Safety

Read and follow the instructions on the label. When using bleach or chlorine always use gloves and protective glasses. In particular, if you are using powder chlorine always mix it up in a bucket of water before adding to the tank. Always put the water in the bucket first and then add the chlorine.

Additional information


Australian Water Association, We all use water: A user’s guide to water and wastewater management, Number 4, Rainwater Tanks.