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**STEROX**

**Guidelines for the use  
of Sterox in chlorinating  
hot and cold water systems**

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# General

**Bacteria, and in particular Legionella pneumophila, the cause of Legionnaires' Disease, can and do grow in hot and cold water systems as well as in humidifiers, air conditioning and industrial cooling systems. The ordinary household is no exception.**

These guidelines describe how to disinfect a normal domestic hot and cold water system using Fernox Sterox by maintaining at least 50 milligrams per litre (mg/L) of free chlorine in a system for at least 1 hour. These instructions conform to the requirements of BS6700:1997 and HSE ACOP L8.

The Sterox tablets each contain 12.5 gms of free chlorine. This means that each tablet dissolved in 225 litres (50 gallons) of water will give approximately 50 mg/L of free chlorine, assuming no loss of chlorine through usage or evaporation.

Systems should be cleaned and disinfected at least once a year and it is advisable to drain, clean and disinfect a system when:

- routine inspection shows it to be necessary
- it is being brought into use for the first time – see also BS6700
- part of it has been out of use and is being re-commissioned
- it has been altered, repaired or otherwise disturbed
- following an outbreak or suspected outbreak of Legionnaires' disease.

**N.B.** Please note that bacteria can also exist under deposits such as limescale. If limescale deposits are present, particularly in hot water cylinders, we would recommend descaling with Fernox DS-3.



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## Health and safety instructions

- 1** Read the health and safety notes on the packaging.
- 2** Advise the occupant of the building that the water in the system should not be used or consumed during the chlorination process. Advise them of any health and safety precautions as appropriate.
- 3** If you are dealing with a contaminated system ensure that you are suitably protected with gloves, face mask etc. Particularly if you are likely to encounter fine spray e.g. from a shower head, humidifier etc., as this is the most common way for Legionnaires' disease to be contracted.
- 4** Keep all chemicals out of the reach of children and do not consume.
- 5** Dispose of the waste safely. If in doubt consult the local water company or Fernox. Always act in accordance with the Control of Substances Hazardous to Health Regulations 1988.
- 6** Use the test tablets as often as is felt appropriate to ensure adequate chlorination and flushing. Do not necessarily rely on smell and taste to complete the task.

## Guidelines for chlorination

- 1** Make sure the system can easily be completely drained. Where necessary fit extra drain points to the bottom of hot water storage or other tanks. Pipe work needs to be self-draining and self-ventilating to aid the filling and draining. Make sure any dead-legs (as opposed to low points in pipework) are fully drainable. The Fernox Injector may be used to introduce pre-dissolved Sterox tablets into pipework fitted with a 1/2" tee, isolating valve and terminating in an air bleed nipple.
- 2** Fit gate valves to the feeds from the cold water storage tank (CWST) if not already fitted.
- 3** Switch off the boiler.
- 4** Shut off the mains supply to the CWST.
- 5** Completely drain the hot and cold system including the hot water cylinder, lavatory cisterns etc.
- 6** Thoroughly clean the CWST, taking care to remove all the debris.
- 7** Shut off the feeds to the system from the CWST.
- 8** Fill the CWST.

- 9** Add two Sterox tablets for every 225 litres (50 gallons) of water in the tank. This should provide more than the required 50 mg/L of free chlorine, but allows for chlorine usage while filling the system. Allow a minute or so for the tablet to break-up then stir until dissolved. Alternatively pre-dissolve the tables in a clean bucket of water, add to the CWST and stir.
- 10** Again, turn off the mains supply to the CWST.
  - a** Open the gate valves on the feeds and release the chlorinated water into the system by running every tap (and shower) and drain cocks on dead legs, starting with the ones nearest the CWST.
  - b** Do not allow the CWST to empty during filling. (This clearly should not happen if it is large enough). If it looks like emptying then close the gate valves in time to allow the CWST to refill, re-chlorinate the filled tank and re-start the filling process.
  - c** All the water in the system should now contain at least 50 mg/L free chlorine. Check this at one or two outlets (including the furthest from the CWST) using the test tablets (see right).

- 11** When the system is full top up the storage tank to above the normal level by holding down the ball valve and add a further tablet (as in point 9). Check the free chlorine level in the tank is at least 50 mg/L.
- 12** At this stage all cistern lids and storage tanks must be in their fixed positions and remain so from this point onwards.
- 13** Leave the system for one hour when the chlorine level should still be in excess of 50 mg/L. Check as in 10 (c) above using the test tablets. If it is not the system should be re-chlorinated as the level of contamination is likely to have been high.
- 14** The chlorinated water now has to be flushed out. This is best done by completely draining the system and tank and refilling with fresh water at least twice.
- 15** Use the test tablets at selected outlets to ensure that the chlorine level is no greater than that of the incoming mains water. A small trace of free chlorine is not harmful but may give an unpleasant taste to the water.

## Use of test tablets

- 1 Fill the test tube to the 10 ml mark.
- 2 Add one tablet.
- 3 Insert stopper and shake tube for a few seconds until tablet dissolves.
- 4 Observe colour and read chlorine level from the following table:-

<b>Colour</b>	<b>Chlorine mg/L (ppm)</b>
Colourless	Absent
<i>(very high doses also bleach out the colour – but water smells strongly of chloride )</i>	
Faint pink to pink	0.2 to 1
Pink to red	1 to 5
Red to purple	5 to 10
Purple to blue	10 to 20
Blue to greyish green	20 to 30
Greyish green to yellow	30 to 50
Muddy brown	Over 50

- 5 Do not allow the foil wrapped tablets to come into direct contact with the chlorine as they will be rendered ineffective.