



Water Hygiene | Chlorination | Water Treatment | Legionella Control

WATER STORAGE TANK & DOWNSERVICES DISINFECTION

Cleaning and Chlorination Procedure

A clean and chlorination has recently been carried out on your water storage tank. This process involves physically cleaning the tank to remove all debris and contaminants and then introducing water containing a known amount of free available chlorine into the pipe and allowing it to stand for a known period of time in order to kill potentially harmful micro-organisms such as bacteria.

The normal chlorination procedure involves the introduction of at least 50 ppm of free chlorine and allowing it to stand for at least 1 hour. This is the method described in the British Standard, BS8558:2011.

The tank is inspected to ensure it meets all current standards and has no significant issues that may affect water quality after cleaning, photographs of the tank are taken for records. The tank is then drained to allow physical cleaning of the tank utilising specialist equipment to remove contamination from the walls and also the base of the tank. The tank is wet vacuumed clean to remove all traces of physical contamination. The lid and walls above the water line are then disinfected with chlorine spray. The tank is then re-photographed as proof of cleaning.

The tank is refilled and dosed with chlorine to achieve at least 50 ppm of free chlorine and allowed to stand for a minimum of 60 minutes. The chlorine within the tank is regularly tested throughout the standing time to ensure that the chlorine levels remain at or above the target strength for the whole period.

Where fast re-introduction of water is vital or where fill times are unacceptably long it is possible to spray disinfect the internal tank surfaces with 1000 ppm of chlorine spray fully wetted over all parts of the tank.

Once the chlorine has stood for the allotted time the chlorine is drained from the tank and the tank briefly flushed to remove trapped chlorine solution. Where it is necessary to neutralise any active chlorine to prevent environmental damage this is done through the addition of sodium thiosulphate crystals to the tank. These react with the chlorine and render it safe.

The tank is then normally refilled, brought back on line and handed back to the client.

What Now?

Your chlorination has now been carried out and you have your certificate of chlorination. This section details what to do next.

The client or main contractor will require the completed chlorination certificate below. If microbiological samples have been taken then once completed these will be provided under a separate cover and should be presented with this certificate of chlorination. If in doubt check with the main contractor as to the original specifications and what steps should be taken. This certificate should be placed into the O&M manual for future reference and inspection.

If there have been any remedial actions highlighted as part of the cleaning procedure it is important to ensure that these are carried out at the first available opportunity. A failure to carry out these actions can result in a significant decrease in water quality and potential pathogenic bacteria such as Legionella colonising the water system.

As part of the Legionella control regulations tanks should be regularly inspected and the tank should have temperatures recorded every 6 months (summer and winter). We would recommend that a brief water tank inspection is carried out at this point to ensure there are no major issues with the water quality.

If the water storage tank feeds outlets that may be used as drinking water then it is important to ensure that the tank is cleaned on an annual basis and WHS will attempt to contact you at this anniversary. This is also true of sites that house potentially high risk individuals, nursing homes, hotels etc. Where water storage tanks are used for the provision of non-drinking water in low risk establishments then an annual inspection is still required and this will highlight any cleaning requirement.

For more advice on the legislative requirements regarding drinking water supplies or Legionella please contact Water Hygiene Solutions.

Water Tank Disinfection Certificate (BS 8558:2011)

Site Location	EXAMPLE		
Site Name	EXAMPLE		
Site Contact	EXAMPLE	Date	16/09/2013

Pre-Chlorination Check	
Warning Signs Placed	Yes
Occupants Informed	Yes
All Outlets Signed	Yes
Biocide Used	Sodium Hypochlorite

Water Heater			
Owner's Tank Designation	Calorifier 1		
Make of Heater	Telford		
Type of Heater	Unvented calorifier		
Volume in Litres	250		
Insulation Type	Integral to heater	Insulation Condition	Good
Water Heater Condition	Good		

Photographs	
External View	
	

Disinfection	
Start Chlorine Level	End Chlorine Level
59 ppm	53 ppm

Flushing	
Post Flush Biocide Level	
0.39 ppm	

System Reinstatement	
Heater Left Full	Heater Left Powered
Yes	Yes

Water Heater			
Owner's Tank Designation	Calorifier 2		
Make of Heater	Telford		
Type of Heater	Unvented calorifier		
Volume in Litres	250		
Insulation Type	Integral to heater	Insulation Condition	Good
Water Heater Condition	Good		



Disinfection	
Start Chlorine Level	End Chlorine Level
59 ppm	53 ppm

Flushing	
Post Flush Biocide Level	
0.39 ppm	

System Reinstatement	
Heater Left Full	Heater Left Powered
Yes	Yes

Pipe Work	
Chlorination Details	
Owner's System Designation	Down Services
Type of System	Mains fed system
Pipe size	22mm/15mm
Pipe Material	HEP/Polyplumb
Hot/Cold Services Disinfected	Hot & cold

Associated Outlets	
Approx Number of WHB	10
Approx Number of Sinks	4
Approx Number of Showers	8
Approx Number of WC	9
Approx Number of Water Fountain	0

Chlorination Phase			
All Outlets Tested	Yes		
Any Inaccessible Outlets	No		
Inaccessible Outlets	None		
Outlets >50 ppm	Yes		
Stand Phase Start Time	10:40		
Stand Phase End Time	11:40		
Biocide Contact Time	60		
Biocide Levels ppm Cl2	Start	End	Outlet Location
Nearest Hot Tap Biocide	59 ppm	53 ppm	Sluice Sink Mains Incoming Room
Nearest Cold Tap Biocide	84 ppm	79 ppm	Sluice Sink Mains Incoming Room
Furthest Hot Tap Biocide	54 ppm	51 ppm	First Floor End Bed Room
Furthest Cold Tap Biocide	74 ppm	69 ppm	First Floor End Bed Room

Flushing Phase		
All Outlets Flushed	Yes	
Any Inaccessible Outlets	No	
Inaccessible Outlets	None	
Nearest Hot Tap Biocide	0.39 ppm	Sluice Sink Mains Incoming Room
Nearest Cold Tap Biocide	0.29 ppm	Sluice Sink Mains Incoming Room
Furthest Hot Tap Biocide	0.41 ppm	First Floor End Bed Room
Furthest Cold Tap Biocide	0.27 ppm	First Floor End Bed Room

Samples	
Location	Sample Type
Sluice Sink Hot	TVC, E. coli, Coliforms
Sluice Sink Cold	TVC, E. coli, Coliforms
End Bed Room Hot	TVC, E. coli, Coliforms
End Bedroom Cold	TVC, E. coli, Coliforms

System Reinstatement	
System Reinstated	Whole system reinstated
Occupants Informed	Yes
All Warning Signs Removed	Yes

Additional Comments
Disinfection carried out on Hot and Cold Down Services using Sodium Hypochlorite at 50 ppm or above for 60 minutes in accordance with BS 8558:2011.

Signatures	
WHS Signature	
WHS Name	C Currie

Disinfection Of Water Down Services

Disinfection

General

The following disinfection procedure is designed to remove bacterial contamination from either a new system, refurbished or altered system or a system that has produced a high bacterial count. If systems are heavily contaminated or show presence of biofilm then additional methods may be required to remove this from pipe work internals.

It is important to ensure that when chlorinating water down services that all precautions are taken to ensure people working within the area fed by the water system are informed and cannot accidentally come into contact with chemically treated water.

Disinfection Procedure

1. Sign into site and obtain necessary permits to work
2. Perform full risk assessment of the area around the system to be inspected.
3. Before any cleaning or disinfection procedure begins place warning boards in good view. Inform relevant site staff, particularly if the water supply is to be disrupted and ensure all staff fully understand the length of service loss and relevant consequences.
4. Ensure that all outlets are clearly labeled with laminated warning signs quoting "CHEMICAL DISINFECTION IN PROGRESS DO NOT USE WATER". This will ensure complete safety of all people in the area during the works.
5. Ensure all drinks machines, coffee machines and sensitive machinery are disconnected from the mains prior to starting work.
6. If samples are required take TVC sample of incoming mains water following WHS method statement. Seal, label and keep cool.
7. Either:
 - a: Clean tank as per WHS tank cleaning method statement, refill and dose to ~60 ppm of free chlorine, close inlet supply.
 - b: Connect mains fed system chlorination machine as per WHS method statement and set dosing system to ~60 ppm of free chlorine.
8. Open water outlet to the system.
9. Open outlets and pull chlorinated water through to all outlets, ensuring >50 ppm of chlorine appears at all outlets. Use a photometer to test nearest and furthest outlets. It is acceptable to use test strips to measure chlorine content at other outlets. Ensure if the system is fed from a tank that the tank does not run dry and if necessary add more water and chlorine to the tank.

10. Ensure any additional tanks, calorifiers and small point of use water heaters have been filled with chlorinated water to >50 ppm of free chlorine.
11. Note ppm of nearest and furthest outlets and time of completion of last outlet on report sheet.
12. Once adequate chlorine levels have been achieved at all outlets refill any tanks present and dose to 50 ppm. If mains fed then valve off the system to further reduce any possibility of backflow.
13. Allow the chlorine solution to stand within all pipe work and if present any tanks/calorifiers for at least 1 hour.
14. After 1 hour check chlorine levels at outlets to ensure they have remained >50 ppm. If levels have dropped below 50 ppm then return to section 7 and re-start chlorination procedure.
15. If chlorine levels are >50 ppm then neutralise any tanks present with sodium thiosulphate, drain and refill with fresh water.
16. Make a note of the time on the report form and flush all outlets until all outlets are showing background levels of chlorine. Remove warning signs as chlorine is flushed, ensuring all signs are removed.
17. Ensure any additional tanks, calorifiers and small point of use water heaters have been fully flushed out and contain only background levels of chlorine.
18. Ensure all drinks machines, coffee machines and sensitive machinery are reconnected to the system.
19. Take photometer reading of final chlorine level at nearest and furthest outlets to ensure chlorine levels are at background levels.
20. If required by site collect TVC samples from nearest and furthest outlets. Label, seal and post with a cool pack to UKAS laboratory.
21. Remove signs, obtain signature on certificate, inform site staff and sign off any work permits. Remove all debris and tools from the site prior to signing out.

Note!! Ensure that the water system returns initial chlorine levels of at least 50 ppm free chlorine and that this remains higher than 35 ppm of chlorine after 1 hour. Failure to do so means failure to comply with BS8558:2011.

HEALTH & SAFETY

CLEANING



CHEMICAL HANDLING



SITE SPECIFIC AS REQUIRED



ABOUT WATER HYGIENE SOLUTIONS LTD

Water Hygiene Solutions Ltd is one of the UK's leading companies in the provision of water hygiene services, cleaning and chlorination work, water treatment chemicals and equipment.

We have an excellent reputation both for the quality of work we undertake and the expertise and experience of our staff. We provide our services to many blue chip companies and public sector sites and our can do attitude ensures that our clients obtain the work they require when they require it, particularly important when deadlines are looming.

With a commitment to staff development and with significant health and safety budget you can be assured of a quality service every time. All our staff have confined space training and EUSR Water Hygiene Cards to ensure both safety and water quality.

OUR SERVICES INCLUDE



Water Tank Cleaning - Regardless of the type of water system it is important that water hygiene is maintained. Water storage tanks especially require regular cleaning to remove debris and bacteria build up and maintain hygiene. Even new water tanks should be chlorinated prior to use to maintain potable water quality. Our specialist teams and equipment can provide cleaning and chlorination of all types and sizes of domestic and industrial water tanks including underground rain water harvesting tanks.



Legionella Management - It is vital to ensure that systems do not pose a risk of Legionnaires Disease and operate within the HSE guidelines. By carrying out bespoke water hygiene risk assessments we are able to determine the risks and provide advice on how to reduce these. It also allows us to design a Legionella control program based on current legislation. Our trained hygiene engineers can provide testing and monitoring of your site to ensure Legionella risk is managed at all times. A site specific log book for records ensures legislative compliance.



Chlorine Dioxide Water Treatment – Chlorine dioxide is an ideal water treatment option to reduce bacteria numbers and maintain water hygiene. It has applications both in potable water supplies for the control of Legionella and general water hygiene and also in process systems such as food manufacturing where bacterial control is important. We can provide equipment to allow the safe generation and dosage of chlorine dioxide in all applications. Chemical supply and routine monitoring/maintenance complete the package..



Boiler Water Treatment - Correct steam boiler management is essential as the lack of, or failure, of a water treatment regime will rapidly lead to increased fuel costs and maintenance bills and will, over time, damage steam plant. Through a full analysis of your water conditions and steam process systems we offer a tailored boiler water treatment program to include pre-treatment plant and chemical water conditioning. Routine analysis by our experienced water treatment engineers ensures continued efficiencies.



Cooling Tower Management - The correct management of cooling towers and evaporative condensers is essential to ensure long life, efficiency and to prevent health hazards from Legionella growth. Our water treatment engineers use in depth water analysis to develop bespoke chemical treatment programs. Service contracts provide routine analysis, monitoring and cleaning to ensure that your cooling tower remains efficient and safe and you remain compliant with HSE guidance.



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