



## THE INSIDE CHIRP

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## WATER LINE SANITATION

### AVIAGEN MANAGEMENT ESSENTIALS



#### WATER LINE SANITATION

Providing a clean water source every day is essential to ensuring your flock's health and best economic performance. The water lines that carry the water to your birds are not transparent; it is not possible to see what is happening inside them. It is important to make a note to clean the water system after every flock.

Successful water sanitation begins with a thorough water line cleaning program. The variability and dynamics of water systems create cleaning challenges, but these can be overcome with water quality information, a little effort and the right tools. Follow these guidelines, and your birds will have a first-class water supply:

### **Step One: Have the Water Analyzed**

Analyze the water for any scale-causing minerals: calcium, magnesium and manganese. If the water contains more than 90 ppm combined calcium and magnesium or 0.05 ppm manganese, you will need to include a "descaler" or an acid in your cleaning program. These products will dissolve the mineral deposits in water lines and fittings.

### **Step Two: Choose a Sanitizing Cleaner**

Choose a sanitizing cleaner that can effectively dissolve any bio-film or slime in the system. Some of the best products for this job are concentrated hydrogen peroxide solutions.

Prior to using any strong cleaners, make sure standpipes are working properly so air pressure build-up in the lines will be released. Consult equipment suppliers before using products to prevent unnecessary damage.

### **Step Three: Prepare the Sanitizing Solution**

For best results, use sanitizing products at the strongest concentration recommended on the label. Most proportioners will only allow concentrations between 0.8 and 1.6% of the original material. If you need to use higher concentrations, it is better to mix the stock solution in a large tank and then distribute it without using a proportioner. For example, if a 3% solution is required, mix three volumes of the cleaner with 97 volumes of water for the final solution.

An excellent sanitizing solution can be made up by using a 35% hydrogen peroxide solution. Mix this as described for a 3% solution.



### **Step Four: Clean the Lines**

It takes 30-38 liters of water to fill and clean 30 m of 20 mm water line. If the building is 150m long and has two water lines, you should make up a minimum of 379 litres of sanitizing solution. Water lines should be designed so that they can be opened to drain completely when the cleaning is complete.

Follow these steps to clean the water lines:

1. Open water lines and drain completely.
2. Begin pumping the cleaner/sanitizer through the water lines.
3. Watch the water as it leaves the drain line for signs of the product, such as foaming or suds.

4. Once water lines are filled with the cleaner, close the tap and leave the product in the lines for as long as the manufacturer recommends (over 24 hours if possible).

5. Flush cleaner from the water lines after the holding period. Water used to flush the lines should contain the level of sanitizer normally used in the drinking water for the birds.

6. After cleaning, sanitizing and flushing the system, the water supply should be fresh and chlorinated (3-5 ppm in the drinker furthest from the source). If using an Oxidation Reduction Potential (ORP) meter, the reading should be a minimum of 650.

### Step Five: Keep the System Clean

1. Once the system has been sanitized, it is important to keep it clean. Develop a good daily water sanitation program for your birds. The ideal water line sanitation program should include injecting both a sanitizer and an acid. It is important to note that this procedure requires two proportioners or injectors since acids and bleach should never be mixed in the same stock solution.

2. The objective is to provide a clean source of drinking water with a continuous level of chlorine at 3-5 ppm at the end of the building furthest from the proportioner.

Total viable bacterial count (TVC) is a good quality assurance test. The table below shows the standard operating levels of TVCs and specific pathogens.

Limits per ml of water in main water supply	GOOD	ACCEPTABLE	UNACCEPTABLE
TVC	0-100	100-300	>300
E.Coli	0	0	1
Pseudomonas	0	0	1



## Final Notes

1. Do not use acid as the sole method of water treatment since acids alone can cause bacterial or fungal growth in water systems.
2. Hydrogen peroxide is very aggressive, and handling requires extreme care. A test on any components should be carried out before the implementation of such a chemical. It is important to follow handling and usage instructions very closely to prevent damage to people and equipment.
3. Hydrogen peroxide is gaining popularity as a water sanitizer. Bicarbonate alkalinity and pH play a major role in the effectiveness of hydrogen peroxide. Hydrogen peroxide can be stored on-site, but it will deteriorate over time. It is a strong oxidant, but it does not provide any lasting residual. A 50% hydrogen peroxide product stabilized with silver citrate proves to be a very effective sanitizer and line cleaner that does not damage water lines.
4. When administering other products to your birds, it is a good idea to stop the inclusion of chlorine (and other sanitizers) in the drinking water. Chlorine will inactivate vaccines and reduce the effectiveness of some medications. Resume use of chlorine and/or other sanitizers after treatment is finished.
5. Waterline sanitation can be governed by local regulations. Please check with local authorities and always follow the manufacturers' instructions.



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**T: +27 (0) 16 366 0249**

**[www.rosspoultrybreeders.co.za](http://www.rosspoultrybreeders.co.za)**

Block A, Techno Link Office Park,  
63 Regency Drive, Route 21 Business Park, Irene.  
Republic of South Africa

P.O.Box 297  
Meyerton 1960  
Republic of South Africa

