



Disinfectants Against Avian Influenza Viruses

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Important Basics

Before disinfecting any surface, make sure it is thoroughly clean. *Cleaning* is the most important part of the phrase “Cleaning and Disinfection,” or C&D. Disinfectants do not work, or work poorly, if dirt and feces are present. You are wasting your time and money applying disinfectant to dirty surfaces.

Thoroughly spray cleaned surfaces with the disinfectant solution. Wash off boots with soap and water (pressurized if available) and make sure there is no adhering mud and feces before stepping into a disinfecting foot bath. Change foot bath solution frequently; change immediately if it becomes highly contaminated with dirt and feces.

Place hand sanitizer stations at entrance of buildings and pens. Alcohol-based sanitizers are effective against AI virus. Get in the habit of disinfecting your hands every time you enter and leave.

Below are listed a few disinfectants that are effective in inactivating the AI virus. Use them for general disinfection of equipment and in foot baths. Choose the disinfectant that works best in your operation as far as cost and availability; however, do not mix disinfectants. Always follow specific safety precautions listed on the product container. The choice of which disinfectant to use is less important than having things clean first. Remember that disinfectants are only a part of your complete biosecurity firewall.

Useful Disinfections

Household bleach (5% sodium hypochlorite)

Advantages:

- Inexpensive and readily available.
- Effective in hard water.
- Can be used in a wide range of dilutions between 1:10 and 1:100.

Disadvantages

- May bleach clothing in higher concentration range.
- Corrosive; long term use may degrade rubber parts.
- Rapidly deactivated in organic matter.
- Inactivated by soap and detergents.

Product use

- Add 1 quart bleach to 6 gallons water. (This is a 1:25 dilution, which equals 200 ppm sodium hypochlorite.)
- Use as a general disinfectant and for foot bath.

Iodine solutions

Advantages

- Stable in storage.
- Relatively safe.
- Effective with soap and detergents.

Disadvantages

- May be difficult to locate and purchase.

Corrosive.
May stain clothes and some surfaces.

Product use

For buildings and equipment:
Use 1 ounce added to 5 gallons water.

Phenols

Advantages

Works in presence of organic matter and hard water.
Residual.

Disadvantages

May be toxic to animals.
Can cause skin and eye irritation – wear appropriate personal protective equipment (gloves, mask).

Product use:

Example 1 = **BioSentry® Biophene™** (Neogen Corporation)

For cleaning surfaces use 0.5 to 1.5 ounce/gallon water.

For boot bath use 1 ounce/gallon water.

Example2 = **1-Stroke Environ®** (Steris® Corporation)

Use for foot bath and general disinfection of surfaces.

Add 0.5 fluid ounce/gallon of water solution.



Figure 1. Example of a footbath, boots, and disinfectant. To be used after boots have been cleaned off with soap and rinsed with water

Oxidizing agents

Disadvantage

May damage various metals.

Product use:

Example = **Virkon® S** (Dupont™)

For surface and equipment disinfection:
Add ¾ cup to 5 gallons of water (1:100 dilution).



Figure 2. Example of a hand sanitizer dispenser that could be made available at entrances.



Figure 3. Example of a hand pump pressure sprayer to apply disinfectant solution after thorough washing and rinsing of equipment



Figure 4. Small hand sprayer that can be used to spray disinfectant solution on small objects.

References

1. *Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008.* Centers for Disease Control and Prevention. http://www.cdc.gov/hicpac/Disinfection_Sterilization/6_0disinfection.html.
2. *Characteristics of Selected Disinfectants.* The Center for Food Security & Public Health, Iowa State University. <http://www.cfsph.iastate.edu/Disinfection/index.php>
3. Biosentry® BioPhene™ Disinfectant Product Sheet. Neogen® Corporation, Lexington, Kentucky. http://www.neogen.com/AnimalSafety/pdf/ProdInfo/Tech_Bulletins/AS127.pdf.
4. 1-Stroke Environ® Germicidal Detergent. Steris® Corporation. <http://webapi.steris.com/api/salesconnection/getdocumentbynumber?id=5397&fileName=1-STROKE%20ENVIRON%20GERMICIDAL%20DETERGENT.pdf>.
5. Virkon® S Product Sheet. Dupont®. http://www2.dupont.com/Virkon_S/en_GB/index.html.

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