Important Sanitation Considerations

Keeping your facility clean and disinfected will make it a healthier place for your animals, your staff, and your customers. You must use both detergent and disinfectant products. Effective sanitation requires thorough cleaning and washing prior to application of a disinfectant. Detergents alone do not kill germs. Although some disinfectants also act as detergents, many (such as bleach) do not. The effectiveness of many disinfectants is reduced by organic material such as feces, urine, kitty litter, saliva, and dirt, so surfaces must be cleaned before disinfecting.

Use only approved disinfectants in your facility. Products that claim to be disinfectants must be registered with the EPA. See the reverse side of this sheet for a list of common disinfectants and their properties to choose what will work best for your facility.

Disinfecting with Bleach

**Most surfaces:** 1600ppm chlorine solution

**Concentrated Bleach (8.25%)** mix 5 Tbs. (2.5 oz.) per one (1) gallon of cold water (1:51 dilution)

**Regular Bleach (5.25%)** mix 1/2 cup (4 oz.) per one gallon of cold water (1:32 dilution)

**Toys, food & water bowls, & grooming equipment:** 650ppm available chlorine

**Concentrated Bleach (8.25%)** mix 2 Tbs. bleach per one (1) gallon of cold water (1:128 dilution)

**Regular Bleach (5.25%)** mix 3 Tbs. (1.5 oz.) per one (1) gallon of cold water (1:85 dilution)

- Mix fresh bleach solution every few hours and replace when visibly dirty.
- Don’t mix bleach with your soap solution. That will inactive the disinfectant properties of the bleach.
- Use cold water as hot water will make the bleach solution less effective.
- Allow bleach solution at least 10 minutes of contact time with surfaces. Rinse with cold water.

Cleaning and Disinfecting with Quaternary Ammonium Chloride (“Quats”)

Quaternary ammonium chloride products are available in gallon containers for dilution and in pre-mixed spray bottles and wipes. These products should be mixed to 660 ppm active quats.

Cleaning and Disinfecting with Oxidizing Agents (i.e Trifectant and Virkon S)

These products are available as tablets or powder for mixing with water. They have some detergent activity. Solutions are effective for up to 7 days after mixing. http://www.drugs.com/vet/trifectant.html

Common Terms

- **Bleach:** Sodium Hypochlorite 5.25 – 6.15%
- **Concentrated Bleach:** Sodium Hypochlorite 8.25%
- **Detergent:** A cleaning agent (including soap) that uses surfactants to suspend dirt and grease. Removes germs but does not kill them.
- **Disinfectant:** A chemical agent that kills most germs. Does not necessarily remove dirt or grease.
- **Disinfectant Cleaners:** Contain surfactants to remove dirt and grease & destroy harmful germs. Many products with quaternary ammonium chloride and oxidizing agents are disinfectant cleaners.
- **Sterilization:** Destruction of all microbes. Generally reserved for surgical equipment.

Surfaces to Disinfect Daily

- Floors, walls and barriers, including fencing
- Food and water containers*
- Toys*
- Grooming equipment
- Kennels and crates (when in use and/or between occupants)
- Furniture in play areas
- Dog runs and walkways
- Cat rooms
- Isolation areas
- Outdoor dog runs and play areas
* No need to disinfect if washed in dishwasher

For more information contact the Public Health Veterinarian’s Office at 206-263-9566
Public Health - Seattle & King County, Zoonotic Disease Program
401 5th Ave, Suite 1100, Seattle, WA 98104

Adapted from the UC Davis Koret Shelter Medicine Program: Cleaning and Disinfecting in Shelters and the Iowa State University CFSPH’s Disinfection 101.
## Characteristics of Selected Disinfectants

<table>
<thead>
<tr>
<th>Disinfectant Category</th>
<th>Alcohols</th>
<th>Aldehydes</th>
<th>Biguanides</th>
<th>Halogens: Hypochlorites</th>
<th>Halogens: Iodine Compounds</th>
<th>Oxidizing Agents</th>
<th>Phenols</th>
<th>Quaternary Ammonium Compounds (QAC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample Trade Names</td>
<td>Ethyl alcohol, Isopropyl alcohol</td>
<td>Formaldehyde, Glutaraldehyde</td>
<td>Chlorhexidine, Nolvasan</td>
<td>Bleach</td>
<td>Betadyne®&lt;sup&gt;™&lt;/sup&gt;, Providone&lt;sup&gt;™&lt;/sup&gt;</td>
<td>Hydrogen peroxide, Peracetic acid, Virkon S, Oxy-Sept 333&lt;sup&gt;™&lt;/sup&gt;</td>
<td>One-Stroke Environ&lt;sup&gt;®&lt;/sup&gt;, Pheno-Tek II&lt;sup&gt;®&lt;/sup&gt;, Tek-Trol&lt;sup&gt;®&lt;/sup&gt;</td>
<td>Roccal&lt;sup&gt;®&lt;/sup&gt;, DiQuat&lt;sup&gt;®&lt;/sup&gt;, D-256&lt;sup&gt;®&lt;/sup&gt;</td>
</tr>
<tr>
<td>Mechanism of Action</td>
<td>• Precipitates proteins</td>
<td>• Denatures proteins, Denatures lipids</td>
<td>• Alkylates nucleic acids</td>
<td>• Alkylates nucleic acids</td>
<td>• Denatures proteins</td>
<td>• Denatures proteins, Alters cell wall permeability</td>
<td>• Denatures proteins, Binds phospholipids of cell membrane</td>
<td></td>
</tr>
<tr>
<td>Advantages</td>
<td>• Fast acting</td>
<td>• Broad spectrum</td>
<td>• Stable in storage</td>
<td>• Good efficacy with organic material</td>
<td>• Broad spectrum</td>
<td>• Good efficacy with organic material</td>
<td>• Stable in storage</td>
<td></td>
</tr>
<tr>
<td>Disadvantages</td>
<td>• Rapid evaporation, Flammable</td>
<td>• Carcinogenic, Mucous membranes and tissue irritation, Toxic to fish (environmental concern)</td>
<td>• Only functions in limited pH range (5–7), Inactivated by sunlight, Requires frequent application</td>
<td>• Inactivated by QACs, Requires frequent application, Corrosive, Stains clothes and treated surfaces</td>
<td>• Damaging to some metals</td>
<td>• Can cause skin and eye irritation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Precautions</td>
<td>Flammable, Carcinogenic</td>
<td>Never mix with acids; toxic chlorine gas will be released</td>
<td>May be toxic to animals, especially cats and pigs</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Vegetative Bacteria</th>
<th>Effective</th>
<th>Effective</th>
<th>Effective</th>
<th>Effective</th>
<th>Effective</th>
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</thead>
<tbody>
<tr>
<td>Mycobacteria</td>
<td>Effective</td>
<td>Effective</td>
<td>Variable</td>
<td>Effective</td>
<td>Limited</td>
<td>Effective</td>
<td>Variable</td>
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<tr>
<td>Enveloped Viruses</td>
<td>Effective</td>
<td>Effective</td>
<td>Limited</td>
<td>Effective</td>
<td>Effective</td>
<td>Effective</td>
<td>Variable</td>
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<tr>
<td>Non-enveloped Viruses</td>
<td>Variable</td>
<td>Effective</td>
<td>Limited</td>
<td>Effective</td>
<td>Variable</td>
<td>Not Effective</td>
<td></td>
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<tr>
<td>Spores</td>
<td>Not Effective</td>
<td>Effective</td>
<td>Not Effective</td>
<td>Limited</td>
<td>Variable</td>
<td>Not Effective</td>
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</tr>
<tr>
<td>Fungi</td>
<td>Effective</td>
<td>Effective</td>
<td>Limited</td>
<td>Effective</td>
<td>Variable</td>
<td>Variable</td>
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</tbody>
</table>

### Efficacy with Organic Matter
- Reduced<br>• Reduced<br>• ?<br>• Rapidly reduced<br>• Rapidly reduced<br>• Variable<br>• Effective<br>• Inactivated

### Efficacy with Hard Water
- ?<br>• Reduced<br>• ?<br>• Effective<br>• ?<br>• ?<br>• Effective<br>• Inactivated

### Efficacy with Soap/Detergents
- ?<br>• Reduced<br>• Inactivated<br>• Inactivated<br>• Effective<br>• ?<br>• Effective<br>• Inactivated

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**Disclaimer:** The use of trade names does not in any way signify endorsement of a particular product. For additional product names, please consult the most recent Compendium of Veterinary Products.


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