

# Characteristics of Selected Disinfectants

FOR MORE INFORMATION, SEE THE 'DISINFECTION 101' DOCUMENT AT [www.cfsph.iastate.edu](http://www.cfsph.iastate.edu)

Disinfectant Category	Alcohols	Aldehydes	Biguanides	Halogens: Hypochlorites	Halogens: Iodine Compounds	Oxidizing Agents	Phenols	Quaternary Ammonium Compounds (QAC)
<b>Sample Trade Names</b>	Ethyl alcohol Isopropyl alcohol	Formaldehyde Glutaraldehyde	Chlorhexidine Nolvasan® Virosan®	Bleach	Betadyne® Providone®	Hydrogen peroxide Peracetic acid Virkon S® Oxy-Sept 333®	One-Stroke Environ® Pheno-Tek II® Tek-Trol®	Roccal® DiQuat® D-256®
<b>Mechanism of Action</b>	<ul style="list-style-type: none"> <li>Precipitates proteins</li> <li>Denatures lipids</li> </ul>	<ul style="list-style-type: none"> <li>Denatures proteins</li> <li>Alkylates nucleic acids</li> </ul>	<ul style="list-style-type: none"> <li>Alters membrane permeability</li> </ul>	<ul style="list-style-type: none"> <li>Denatures proteins</li> </ul>	<ul style="list-style-type: none"> <li>Denatures proteins</li> </ul>	<ul style="list-style-type: none"> <li>Denature proteins and lipids</li> </ul>	<ul style="list-style-type: none"> <li>Denatures proteins</li> <li>Alters cell wall permeability</li> </ul>	<ul style="list-style-type: none"> <li>Denatures proteins</li> <li>Binds phospholipids of cell membrane</li> </ul>
<b>Advantages</b>	<ul style="list-style-type: none"> <li>Fast acting</li> <li>Leaves no residue</li> </ul>	<ul style="list-style-type: none"> <li>Broad spectrum</li> </ul>	<ul style="list-style-type: none"> <li>Broad spectrum</li> </ul>	<ul style="list-style-type: none"> <li>Broad spectrum</li> <li>Short contact time</li> <li>Inexpensive</li> </ul>	<ul style="list-style-type: none"> <li>Stable in storage</li> <li>Relatively safe</li> </ul>	<ul style="list-style-type: none"> <li>Broad spectrum</li> </ul>	<ul style="list-style-type: none"> <li>Good efficacy with organic material</li> <li>Non-corrosive</li> <li>Stable in storage</li> </ul>	<ul style="list-style-type: none"> <li>Stable in storage</li> <li>Non-irritating to skin</li> <li>Effective at high temperatures and high pH (9-10)</li> </ul>
<b>Disadvantages</b>	<ul style="list-style-type: none"> <li>Rapid evaporation</li> <li>Flammable</li> </ul>	<ul style="list-style-type: none"> <li>Carcinogenic</li> <li>Mucous membranes and tissue irritation</li> <li>Only use in well ventilated areas</li> </ul>	<ul style="list-style-type: none"> <li>Only functions in limited pH range (5-7)</li> <li>Toxic to fish (environmental concern)</li> </ul>	<ul style="list-style-type: none"> <li>Inactivated by sunlight</li> <li>Requires frequent application</li> <li>Corrodes metals</li> <li>Mucous membrane and tissue irritation</li> </ul>	<ul style="list-style-type: none"> <li>Inactivated by QACs</li> <li>Requires frequent application</li> <li>Corrosive</li> <li>Stains clothes and treated surfaces</li> </ul>	<ul style="list-style-type: none"> <li>Damaging to some metals</li> </ul>	<ul style="list-style-type: none"> <li>Can cause skin and eye irritation</li> </ul>	
<b>Precautions</b>	Flammable	Carcinogenic		Never mix with acids; toxic chlorine gas will be released			May be toxic to animals, especially cats and pigs	
<b>Vegetative Bacteria</b>	Effective	Effective	Effective	Effective	Effective	Effective	Effective	YES—Gram Positive Limited—Gram Negative
<b>Mycobacteria</b>	Effective	Effective	Variable	Effective	Limited	Effective	Variable	Variable
<b>Enveloped Viruses</b>	Effective	Effective	Limited	Effective	Effective	Effective	Effective	Variable
<b>Non-enveloped Viruses</b>	Variable	Effective	Limited	Effective	Limited	Effective	Variable	Not Effective
<b>Spores</b>	Not Effective	Effective	Not Effective	Variable	Limited	Variable	Not Effective	Not Effective
<b>Fungi</b>	Effective	Effective	Limited	Effective	Effective	Variable	Variable	Variable
<b>Efficacy with Organic Matter</b>	Reduced	Reduced	?	Rapidly reduced	Rapidly reduced	Variable	Effective	Inactivated
<b>Efficacy with Hard Water</b>	?	Reduced	?	Effective	?	?	Effective	Inactivated
<b>Efficacy with Soap/Detergents</b>	?	Reduced	Inactivated	Inactivated	Effective	?	Effective	Inactivated

? Information not found

*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.*

REFERENCES: Linton AH, Hugo WB, Russel AD. Disinfection in Veterinary and Farm Practice. 1987. Blackwell Scientific Publications; Oxford, England; Quinn PJ, Markey BK. Disinfection and Disease Prevention in Veterinary Medicine, In: Block SS, ed., Disinfection, Sterilization and Preservation. 5th edition. 2001. Lippincott, Williams and Wilkins: Philadelphia.