



Florida State University Animal Care and Use Committee Guidelines

Disinfectants and Sterilization

(Adopted by the FSU ACUC 05/25/2005)

DEFINITIONS:

Disinfection – The chemical or physical process that involves the destruction of pathogenic organisms. Disinfectants are effective against vegetative forms of organism, but not spores.

Sterilization – The process whereby all viable microorganisms are eliminated or destroyed, including spores.

Table 1. RECOMMENDED HARD SURFACE DISINFECTANTS* (For use on table tops, etc.)

AGENT	EXAMPLES	COMMENTS
Alcohol	70% ethyl alcohol 85% isopropyl alcohol	Required minimum contact time of 15 minutes.
Chlorhexidine	Nolvasan®, Hibiclens®	Presence of blood does not interfere with activity. Rapidly bactericidal and persistent. Effective against many viruses.
Chlorine	Bleach (sodium hypochlorite, 10% solution) Clidox®, Alcide® (chlorine dioxide)	<u>Corrosive.</u> Presence of organic matter reduces activity. Chlorine dioxide must be fresh; kills vegetative organisms within 3 minutes of contact.
Glutaraldehydes	Cidex®, Cetylcide ®	Rapidly disinfects surfaces. Toxic. Exposure limits have been set by OSHA.
Phenolics	Lysol®	Less affected by organic material than other disinfectants.
Quaternary Ammonium	Roccal®, Quatricide®	Rapidly inactivated by organic matter. Compounds may support growth of gram negative bacteria.

***NOTE #1** – Clean gross contamination (dirt, dust, rust, blood, etc.) from all hard surfaces prior to applying a surface disinfectant. Failure to do so will either require a significantly longer contact time for disinfection to occur or failure of the disinfectant.

NOTE #2 – Follow manufacturer’s instructions closely. For corrosive agents, wipe down with sterile water, saline or alcohol after disinfecting with agent.

Table 2. RECOMMENDED SKIN DISINFECTANTS*

AGENT	EXAMPLES	COMMENTS
Chlorhexidine	Nolvasan®, Hibiclens® scrubs and solutions	Presence of blood does not interfere with activity. Rapidly bactericidal and persistent. Effective against many viruses. Excellent for use on skin. Preferred for use on head.
Iodophors	Betadine®, Prepodyne®, Wescodyne® scrubs and solutions	Reduced activity in presence of organic matter. Wide range of microbicidal action. Works best in pH 6-7.

***NOTE** – Clean gross contamination (dirt, dust, blood, hair, etc.) from surgical site prior to applying a skin disinfectants. Failure to do so will either require a significantly longer contact time for disinfection to occur or failure of the disinfectant. An alternating scrub and wipe routine (disinfectant followed by alcohol) should be repeated three times. Ideally it should then be followed by painting the site with a disinfectant solution.

Table 3. RECOMMENDED METHODS FOR INSTRUMENT STERILIZATION*

AGENT	EXAMPLES	COMMENTS
Chlorine	Bleach (sodium hypochlorite, 10% solution) Clidox®, Alcide® (chlorine dioxide)	<u>Corrosive to instruments.</u> Presence of organic matter reduces activity. Chlorine dioxide must be fresh; kills vegetative organisms within 3 minutes of contact. Instruments must be rinsed with sterile saline or sterile water before use. Chlorine requires a minimum of 6 hours for sterilization.

Dry Heat	Oven, Hot Bead Sterilizer	Fast. Instruments must be cooled before contacting tissue. Only tips of instruments are sterilized with hot beads.
Gas Sterilization	Ethylene Oxide	Requires a 30% or greater relative humidity for effectiveness against spores. Gas is irritating to tissue; all materials require safe airing time.
Glutaraldehydes	Cidex®, Cetylcide ®	Requires several hours for sterilization. Corrosive and irritating. Instruments must be rinsed with sterile saline or sterile water before use.
Hydrogen Peroxide/Peracetic Acid	Actril®, Spor-Klenz®	Several hours required for sterilization. Corrosive and irritating. Instruments must be rinsed with sterile saline or sterile water before use.
Steam Sterilization	Autoclave	Effectiveness dependent upon temperature, pressure and time. Recommendations are for 121°C for 15 min or 131°C for 3 min

***NOTE** - ALL surgical supplies and equipment must be cleaned prior to sterilization in order to remove organic material that may interfere with sterilization. Use of cold sterilants requires thorough rinsing with sterile saline or water after sterilization period and prior to use in surgery. Follow manufacturer's instructions for cold sterilants closely.

Table 4. RECOMMENDED DISINFECTANTS FOR INSTRUMENTS*

AGENT	EXAMPLES	COMMENTS
Alcohols	70% ethyl alcohol 85% isopropyl alcohol	Minimum contact time 15 minutes. Contaminated surfaces may take longer to disinfect or may make ineffective. Remove gross contamination before using.
Chlorhexidine	Nolvasan®, Hibiclens®	Presence of blood does not interfere with activity. Rapidly bactericidal and

		persistent. Effective against many viruses. Instruments must be rinsed with sterile saline sterile water before use.
Chlorine	Bleach (sodium hypochlorite, 10% solution) Clidox®, Alcide® (chlorine dioxide)	<u>Corrosive</u> . Presence of organic matter reduces activity. Chlorine dioxide must be fresh; kills vegetative organisms within 3 minutes of contact. Instruments must be rinsed with sterile saline sterile water before use.
Dry Heat	Glass bead sterilizer	Fast. Instruments must be cooled before contacting tissue.
Glutaraldehydes	Cidex®, Cetylcide ®	Minimum contact time is 15 minutes. Corrosive and irritating. Instruments must be rinsed with sterile saline or sterile water before use.
Hydrogen Peroxide/Peracetic Acid	Spor-Klenz®	Minimum contact time is 15 minutes. Corrosive and irritating. Instruments must be rinsed with sterile saline or sterile water before use.

***NOTE #1** – Surgical instruments may be used on more than one animal, however any item used on multiple animals must be carefully cleaned and disinfected between animals. Hot bead sterilizers are preferred or a flash autoclave cycle. Soaking in cold disinfectants is acceptable, provided adequate contact time is allowed. Surgeons should anticipate the number of instruments necessary to allow for uninterrupted surgery while affording adequate contact time. Cold disinfectants must be replaced when contaminated with body fluids or tissues.

***NOTE #2** - ALL surgical supplies and equipment must be cleaned prior to sterilization in order to remove organic material that may interfere with sterilization. Use of cold sterilants requires thorough rinsing with sterile saline or water after sterilization period and prior to use in surgery. Follow manufacturer’s instructions for cold sterilants closely.