

Institutional Animal Care and Use Committee

**Recommended Surgical Disinfectants,
Sterilants, and Suture Materials**

Table 1. Recommended Hard Surface Disinfectants

To be used, for example, on table tops, equipment, and other surgical areas.

Note: always follow manufacturer's instructions, particularly regarding contact times.

Name	Examples	Comments
Alcohols	70% ethyl alcohol 70%-99% isopropyl alcohol	Contact time required is 15 minutes. Contaminated surfaces take longer to disinfect. Remove gross contamination before using. Inexpensive. Flammable. May damage rubber and plastic items.
Quaternary Ammonium	Roccal [®] , Cetylcide [®]	Rapidly inactivated by organic matter. Compounds may support growth of gram negative bacteria.
Chlorine	Sodium hypochlorite (Clorox [®] 10% solution) Chlorine dioxide (Clidox [®] , Alcide [®])	<u>Corrosive</u> . Presence of organic matter reduces activity. Chlorine dioxide must be fresh (<14 Days old); kills vegetative organisms within 3 minutes of contact. A rinse with water or alcohol is required after solid surface disinfection.
Aldehydes	Gluteraldehyde (Cidex [®] , Cide Wipes [®])	Rapidly disinfects surfaces. Asthma and carcinogen risk. Toxic Exposure limits have been set by OSHA. Not generally recommended except for surgical instruments and medical devices.
Phenolics	Lysol [®] , TBQ [®]	Less affected by organic material than other disinfectants. Corrosive, harsh, toxic with a pungent odor. Skin irritant.
Chlorhexidine	Nolvasan [®] , Hibiclens [®]	Presence of blood does not interfere with activity. Rapidly bactericidal and persistent. Effective against many viruses.
Accelerated Hydrogen Peroxide	Rescue [®] , Peroxigard [®]	Broad spectrum of activity. Environmentally safe. 90-day shelf life once diluted. Dilution is non-toxic, non-irritating, gentle on equipment. Concentrate is corrosive. Active breaks down in oxygen and water.

Table 2. Skin Disinfectants

Alternating disinfectants is more effective than using a single agent. For instance, an iodophore scrub can be alternated 3 times with an alcohol, followed by a final soaking with a disinfectant solution. Scrubs should be rinsed thoroughly with sterile saline or water before application of disinfectant solutions.

Name	Examples	Comments
Iodophors	Betadine [®] , Prepodyne [®] , Wescodyne [®]	Reduced activity in presence of organic matter. Wide range of microbe killing action. Works best at pH 6-7. Precautions should be taken as iodophors can affect thyroid function.
Chlorhexidine	Nolvasan [®] , Hibiclens [®]	Presence of blood does not interfere with activity. Rapidly bactericidal and persistent. Effective against many viruses. Excellent for use on skin.

Table 3. Recommended Instrument Sterilants

Note: always follow manufacturer's instructions, particularly regarding contact times.

Agents	Examples	Comments
Physical Agents:		
Steam sterilization (moist heat)	Autoclave	Effectiveness dependent upon temperature, pressure and time (e.g., 121°C for 15 min vs. 131° C for 3 min).
Dry Heat ¹	Hot Bead Sterilizer Dry Chamber	Fast. Instruments must be cooled before contacting tissue.
Ionizing radiation	Gamma Radiation	Requires special equipment
Chemical Agents:		
Gas Sterilization	Ethylene Oxide	Requires 30% or greater relative humidity for effectiveness against spores. Gas is irritating to tissues, all materials require safe airing time. Carcinogenic. Use only for materials which cannot be sterilized with any other method.
Hydrogen Peroxide	(Sterad [®])	Not useful for “delicate” items.
Chlorine ²	Chlorine Dioxide (Clidox [®] , Alcide [®])	A minimum of 6 hours required for sterilization. Presence of organic matter reduces activity. Must be freshly made (<14 days)
Aldehydes ²	Formaldehyde (2% sol.) Gluteraldehyde	All aldehydes require many hours for sterilization. Corrosive and irritating. Asthma and carcinogen risk. Consult safety representative on proper use. Gluteraldehyde is less irritating and less corrosive than formaldehyde.

¹Instruments must be cleaned and rinsed before being placed in the bead sterilizer.

²Instruments must be rinsed thoroughly with sterile water or saline to remove chemical sterilants before being used.

Table 4. Recommended Instrument Disinfectants

Agent	Examples	Comments
Chlorine ¹	Sodium hypochlorite (Clorox [®] 10% solution) Chlorine dioxide (Clidox [®] , Alcide [®])	Corrosive. Presence of organic matter reduces activity. Chlorine dioxide must be fresh (<14 Days old); kills vegetative organisms within 3 minutes of contact.
Peracetic Acid/ Hydrogen Peroxide	Spor - Klenz [®]	Corrosive to instrument surfaces. Must be thoroughly rinsed from instruments before use.
Chlorhexidine	Nolvasan [®] , Hibiclens [®]	Presence of blood does not interfere with activity. Rapidly bactericidal and persistent, but bacterial spectrum is narrow. Effective against many viruses.

¹Instruments must be rinsed thoroughly with sterile water or saline to remove chemical disinfectants before being used.

Table 5. Suture Selection

Material	Characteristics and Frequent Applications
Vicryl [®] , Dexon [®]	Absorbable (60-90 days). Ligate or suture tissues where an absorbable suture is desirable.
PDS [®] or Maxon [®]	Absorbable (6 months). Ligate or suture tissues especially where an absorbable suture and extended wound support is desirable.
Prolene [®]	Nonabsorbable. Inert.
Nylon	Nonabsorbable. Inert. Recommended for skin.
Silk	Nonabsorbable. <i>Caution:</i> Tissue reactive and may wick microorganisms into the wound. Silk is very easy to use and knot. Not acceptable for suturing skin.
Chromic Gut	Absorbable. Versatile material. Causes mild inflammation, but is absorbed more rapidly than synthetics. Not acceptable for suturing skin.
Stainless Steel Wound Clips, Staples	Nonabsorbable. Requires instrument for removal from skin.

Note: Suture sizes for most general purposes for mice are 4-0 or 5-0 and for rats is 3-0 or 4-0. Sutures or staples must be removed from the skin after the incision is healed; this is generally 7-10 days.