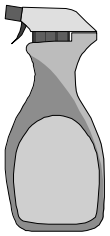
MANAGING CHEMICALS From Hospitals and Biomedical Labs

COMMON DISINFECTANTS FOR HOSPITAL USE

Note: When deciding whether a solution can be disposed to the sewer, you must determine the concentration at the end of the process. If the process includes rinsing the disinfectant off with water, the regulated concentration is at the end of the rinsing. The point of discharge is considered to be where the liquid first enters a sink or floor drain. Dilution to lower the concentration to make a material non-hazardous is forbidden under the Washington State Dangerous Waste Regulations.



PHENOLICS

Examples: Benzyl-4-chlorophenol, Amylphenol, Phenylphenol

Advantages and disadvantages: good general purpose disinfectants, not readily inactivated by organic matter, active against wide range of organisms (including mycobacteria), but not sporicidal.

Disposal guidance:

- *Benzyl-4-chlorophenol* is a hazardous waste (halogenated organic compound) due to environmental persistence at concentrations above 0.01%. It also is a toxic hazardous waste at concentrations above 10%. It must be captured and properly disposed. Solutions below 10% can be disposed to the King County sanitary sewer.
- *Amylphenol* is a toxic hazardous waste at concentrations above 10%. It must be captured and properly disposed. Solutions below 10% can be disposed to the King County sanitary sewer.
- *Phenylphenol* is a toxic hazardous waste at concentrations above 10%. It must be captured and properly disposed. Solutions below 10% can be disposed to the King County sanitary sewer.

HALOGENS

Examples: hypochlorites, bleach

Advantages and disadvantages: cheap, effective, act by release of free chlorine, active against viruses and therefore recommended for disinfection of equipment soiled with blood (because of HIV and hepatitis risk), but rapidly inactivated by organic material and corrosive to metals.

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*(**Halogens** continued)*

Disposal guidance:

- *Hypochlorite* compounds, including bleach, are hazardous wastes at concentrations below 10% are allowed to be disposed to the King County sanitary sewer. If discharging large batches (several hundred gallons), seek approval from your local sewer agency prior to discharge.

ALCOHOLS

Examples and usage: ethyl alcohol (ethanol), isopropyl alcohol (isopropanol).

Comments: good choice for skin disinfection and for cleaning surfaces, sometimes used in combination with iodine or chlorhexidine. Water must be present for bacterial killing. Isopropanol is preferred for skin and articles in contact with patient.

Disposal guidance:

- *Ethanol solutions* are ignitable hazardous wastes at concentrations above 24% and must be captured and properly disposed. Solutions below 24% can be disposed to the King County sanitary sewer.
- *Isopropanol solutions* are ignitable hazardous wastes at concentrations above 24% and are toxic hazardous wastes at concentrations above 10% and must be captured and properly disposed. Solutions below 10% can be disposed to the King County sanitary sewer.

ALDEHYDES

Example: glutaraldehyde

Advantages and disadvantages: kills vegetative organisms including mycobacteria slowly but effectively. More active, less toxic than formaldehyde, sporicidal (within 6 hours when fresh), irritant, used in alkaline solution which is stable 1-2 weeks, expensive, limited use (e.g., disinfection of endoscopes).

Disposal guidance:

- *Glutaraldehyde* is a toxic hazardous waste at concentrations above 1%. However, it has been demonstrated that it poses no risks when glutaraldehyde disinfectants below 4% are disposed to the sewer. Therefore, glutaraldehyde solutions below 4% can be disposed to the King County sanitary sewer. Those above 4% must be disposed as hazardous waste.

QUATERNARY AMINES

Example: Alkyl dimethyl benzyl ammonium chloride, Alkyl dimethyl ethylbenzyl ammonium chloride

Advantages and disadvantages: effective at low concentrations. Inexpensive broadly effective surface disinfectant.

Disposal guidance:

- *Quaternary amines* designate as toxic hazardous wastes at concentrations above 1%. It must be captured and properly disposed. Solutions below 1% can be disposed to the King County sanitary sewer.

This fact sheet was created by the Medical Industry Waste Prevention Roundtable as part of a seminar series designed to help medical industry professionals control costs through product stewardship and waste reduction. Please pass this sheet on to others who maybe interested.

Medical Industry Waste Prevention Roundtable

What is the Medical Industry Waste Prevention Roundtable? The Roundtable was established in early 1999 to bring together medical industry professionals who are interested in exchanging ideas on, and developing new ways of, preventing and reducing waste. During 2000 and 2001 the group is hosting a series of seminars to develop cost-effective, environmentally sound solutions for managing major medical wastes such as products and packaging.

The Medical Industry Waste Prevention Roundtable is sponsored by:

King County Solid Waste Division | EPA Region 10 | Local Hazardous Waste Management Program in King County | Business and Industry Recycling Venture | WSHES | ASHES

For more information on the Roundtable, visit our Web site at http://dnr.metrokc.gov/swd/bizprog/waste_pre/medical.htm or contact Kinley Deller at (206) 296-4434 or kinley.deller@metrokc.gov.