Selection of Surface Disinfectants

Selection of an appropriate surface disinfectant is governed by several factors, including the type of surface to be disinfected, temperature, weather conditions, effectiveness against specific disease causing organisms, and time required for the disinfectant to inactivate the agent. The efficacy of most disinfectants is impaired by the presence of organic material, and thorough cleaning prior to their application is critical. Consult your veterinarian, federal or state animal health official, or a technical representative of the company manufacturing the disinfectant for specific recommendations.

Precautions

When using surface disinfectants, ***always:***

1) *Follow label directions regarding use and safety precautions.*
2) *Take proper precautions to protect the environment and ensure safe use of the product.*
3) *Wear personal protective gear as indicated on the product label to protect hands, skin, nose, mouth and eyes.*

Glossary of Biosecurity Terminology

Disinfectant: a substance that destroys harmful microorganisms. According to the Environmental Protection Agency (EPA), a disinfectant destroys 100 percent of the vegetative (actually growing) bacteria of a certain species under specified conditions. However, disinfection does not include efficacy against fungi, viruses, *Mycobacterium tuberculosis* or bacterial spores (unless specifically tested against those organisms with EPA approved methods).

Sanitizer: reduces vegetative cells, but not the spores, of bacteria to a safe level as may be judged by public health requirements (by reduction of 99.9 percent of vegetative bacteria).

Virucide: kills or inactivates viruses. For EPA label claims, EPA accepted protocols must be used in testing specific viruses.

Sporicide: kills all microorganisms including bacterial endospores, a very resistant form of certain microorganisms, which develop as a means of survival under adverse conditions.

Fungicide: kills or inactivates fungi. For EPA label claims, EPA accepted protocols must be used in testing specific fungi.

Bactericide: kills or inactivates bacteria. For EPA label claims, EPA accepted protocols must be used in testing specific bacteria.

Detergent: cleansing agents that emulsify grease and suspend dirt particles to assist in their removal.

Disinfectant detergent: combination product for one-step cleaning, disinfecting, and deodorizing.

Tuberculocidal: kills *Mycobacterium tuberculosis,* an acid fast bacteria which is generally more difficult to kill than most bacteria. Making label claims for tuberculocidal activity requires testing under specific EPA protocols.

Material Safety Data Sheet (MSDS): informational sheet describing properties, usages, and safety concerns of a material or product.

Important Information

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CALIFORNIA DEPARTMENT OF FOOD & AGRICULTURE

Animal Health and Food Safety Services
Animal Health Branch

Biosecurity

Selection and Use of Surface Disinfectants

June 2007

Compound	Chlorine	Iodine Iodophor	Chlorhexidine	Alcohol	Oxidizing	Phenol	Quaternary Ammonium
Examples:	*Clorox*	*Betadyne, Prepodyne*	*Nolvasan-S*	*Isopropyl*	*Virkon-S*	*Lysol, 1-Stroke Environ*	*Zephiran*
Bactericidal	good	good	very good	good	good	good	good
Virucidal	very good	good	very good	good	good	fair	fair
Sporacidal	fair	fair	poor	fair	fair-good	poor	poor
Fungicidal	good	good	fair-good	fair	fair	good	fair
Effective in organic material	poor	fair	fair	fair	poor	good	poor
Inactivated by soap	no	no	no	no	no	no	yes
Effective in hard water	yes	no	yes	yes	yes	yes	no
Contact time (minutes)	30	30	10	30	30	30	30
Residual activity	poor	poor	good	fair	poor	poor	fair
Comments	Corrosive, low cost, frequent applications	Corrosive, low cost, frequent applications	Low cost, some residual activity if in contact for at least 5 minutes	Flammable, expensive	Corrosive to metal, solution stable for 7 days	Useful in presence of organic material, tuberculocidal	Must be used on surfaces that are clean and rinsed free of detergents