

SUMMARY OF PRACTICAL DISINFECTANTS FOR USE IN BIOLOGICAL RESEARCH

DISINFECTANTS		PRACTICAL REQUIREMENTS					INACTIVATES						
		Use Dilution	Contact Time (Minutes)		Temperature °C	Relative Humidity %	Vegetative Bacteria	Lipo-viruses	Non-Lipid Viruses	Bacterial Spores	H I V	H B V	T B
TYPE	CATEGORY		Lipo-virus	Broad Spectrum									
LIQUID	Quat. Ammonia Compounds	0.1 -2.0%	10 -30	-			+	+	-	-	+	-	-
	Phenolics, Amphyl	1.0-5.0%	10-30	-			+	+	*	-	+	*	+
	Chlorine Bleach	5%	10-30	30			+	+	+	+	+	+	+
	Iodophor, Wescodyne	0.5-10%	10-30	30			+	-	+	+	+	*	+
	Alcohol, Ethyl	70-85%	10-30	-			+	-	*	-	+	*	-
	Alcohol, Isopropyl	70-85%	10-30	-			+	+	*	-	+	*	-
	Formaldehyde	0.2-8.0%	10-30	30			+	+	+	+	+	+	+
	Glutaraldehyde	2.0%	10-30	30			+	+	+	+	+	+	+
GAS	Ethylene Oxide ¹	8-23g/ft ³	60-240	60	37	30	+	+	+	+	+	+	+
	Paraformaldehyde	0.3g/ft ³	60-180	60	>23	>60	+	+	+	+	+	+	+

+ positive effect; - no effect; * variable effect.

Main reference: NIH Safety Monograph, 1979

Disinfectant selection must be based on several factors.

- What is the target organism that you wish to inactivate? (spore-bearing bacteria are very resistant to most disinfectants.)
- What are the physical characteristics of the surface that will be disinfected? (porous surfaces may absorb disinfectants; some disinfectants may corrode metal surfaces.)
- How long will the contact time be between the disinfectant and the target organism? (high concentrations of biological organisms may require longer contact times.)
- What is the concentration of the disinfectant as it is being applied? (dilute applications of disinfectants may not lyse or denature cell chemical components.)
- How toxic is the disinfectant? (Paraformaldehyde, Formaldehyde, Glutaraldehyde and Ethylene Oxide should not be used without consent of the Biosafety Committee)

The chart is designed to illustrate the efficacy of several disinfectants with regard to some of the most commonly used organisms on our campus. Review the effective concentrations provided in the use dilution column and the contact time as well the type of organism prior to disinfectant selection. If you have any questions, call EH&S at 725-1473 for more information.

¹ Contact the Stanford University Department of Environmental Health and Safety (725-9005) if ethylene oxide is to be used.