

# SUMMARY OF PRACTICAL DISINFECTANTS FOR USE IN BIOLOGICAL RESEARCH

DISINFECTANTS		PRACTICAL REQUIREMENTS					INACTIVATES						
		USE DILUTION	CONTACT TIME (MINUTES)		TEMP. (°C)	RELATIVE HUMIDITY (%)	VEGETATIVE BACTERIA	LIPOVIRUSES	NON-LIPID VIRUSES	BACTERIAL SPORES	TB	HIV	HBV
LIPO-VIRUS	BROAD SPECTRUM												
LIQUID	Quaternary Ammonium 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	8-23g/ft <sup>3</sup>	60-240	60	37	30	+	+	+	+	+	+	+
	Paraformaldehyde	0.3g/ft <sup>3</sup>	60-180	60	>23	>60	+	+	+	+	+	+	+

+ Positive Effect; - No Effect; \* Variable Effect

Main Reference: NIH Safety Monograph, 1979; BMBL 5<sup>th</sup> Edition, 2009; WHO Laboratory Safety Manual, 2004

## 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 Office of Safety)
- The chart is designed to illustrate the efficacy of several disinfectants with regard to some of the most commonly used organisms on University of North Dakota 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 Office of Safety at 777-3341 (M-F 8am - 4.30pm) for more information.
- Contact the Office of Safety (777-3341) if ethylene oxide is to be used.