

ULTRAVIOLET SYSTEMS



ULTRAVIOLET DOSAGE REQUIRED FOR 99.9% DESTRUCTION OF VARIOUS ORGANISMS ($\mu\text{W} \cdot \text{sec} / \text{cm}^2$ @ 254 nm)

$\mu\text{W}/\text{cm}^2$ = milliwatts per square centimeter

mJ/cm^2 = microjoules per square centimeter

Bacteria	$\mu\text{W}/\text{cm}^2$	mJ/cm^2
Agrobacterium tumefaciens	8,500	8.5
Bacillus anthracis (vegetative)	8,700	8.7
Bacillus anthracis Spores (spores)	46,200	46.2
Bacillus enteritidis	7,600	7.6
Bacillus Megatherium sp. (vegetative)	2,500	2.5
Bacillus Megatherium sp. (spores)	52,000	52
Bacillus paratyphosus	6,100	6.1
Bacillus subtilis (vegetative)	11,000	11
Bacillus subtilis (spores)	58,000	58
Clostridium botulinum	11,200	11.2
Clostridium tetani	23,100	23.1
Corynebacterium diphtheria	6,500	6.5
Dysentery bacilli	4,200	4.2
Eberthella typhosa	4,100	4.1
Escherichia coli	7,000	7
Legionella bozemanii	3,500	3.5
Legionella dumoffi II	5,500	5.5
Legionella gormanii	4,900	4.9
Legionella micdadei	3,100	3.1
Legionella longbeachae	2,900	2.9
Legionella pneumophila (Legionnaire's Disease)	12,300	12.3
Leptospira canicola-Infectious Jaundice	6,000	6
Leptospira interrogans	6,000	6
Micrococcus candidus	12,300	12.3
Micrococcus sphaeroides	15,400	15.4
Mycobacterium tuberculosis	10,000	10
Neisseria catarrhalis	8,500	8.5
Phytomonas tumefaciens	8,500	8.5
Proteus vulgaris	6,600	6.6
Pseudomonas aeruginosa (Environ. Strain)	10,500	10.5
Pseudomonas aeruginosa (Lab. Strain)	3,900	3.9
Pseudomonas fluorescens	6,600	6.6
Rhodospirillum rubrum	6,200	6.2
Salmonella enteritidis	7,600	7.6
Salmonella paratyphi (Enteric Fever)	6,100	6.1
Salmonella Species	15,200	15.2
Salmonella typhimurium	15,200	15.2

Bacteria (continued)	$\mu\text{W}/\text{cm}^2$	mJ/cm^2
Salmonella typhosa (Typhoid Fever)	7,000	7
Salmonella	10,500	10.5
Sarcina lutea	26,400	26.4
Serratia marcescens	6,200	6.2
Shigella dysenteriae (Dysentery)	4,200	4.2
Shigella flexneri - Dysentery	3,400	3.4
Shigella paradysenteriae	3,400	3.4
Shigella sonnei	7,000	7
Spirillum rubrum	6,160	6.16
Staphylococcus albus	5,720	5.72
Staphylococcus aureus	6,600	6.6
Staphylococcus epidermidis	5,800	5.8
Streptococcus faecalis	10,000	10
Streptococcus hemolyticus	5,500	5.5
Streptococcus lactis	8,800	8.8
Streptococcus pyrogenes	4,200	4.2
Streptococcus salivarius	4,200	4.2
Streptococcus viridans	3,800	3.8
Vibrio comma (Cholera)	6,500	6.5
Vibrio cholerae	6,500	6.5

Mold Spores	$\mu\text{W}/\text{cm}^2$	mJ/cm^2
Aspergillus amstelodami	77,000	77
Aspergillus flavus	99,000	99
Aspergillus glaucus	88,000	88
Aspergillus niger	330,000	330
Mucor mucedo	77,000	77
Mucor racemosus A	35,200	35.2
Mucor racemosus B	35,200	35.2
Oospora lactis	11,000	11
Penicillium chrysogenum	56,000	56
Penicillium digitatum	88,000	88
Penicillium expansum	22,000	22
Penicillium roqueforti	26,400	26.4
Rhizopus nigricans	220,000	220

ULTRAVIOLET SYSTEMS



ULTRAVIOLET DOSAGE REQUIRED FOR 99.9% DESTRUCTION OF VARIOUS ORGANISMS ($\mu\text{W} \cdot \text{sec} / \text{cm}^2$ @ 254 nm)

$\mu\text{W}/\text{cm}^2$ = milliwatts per square centimeter

mJ/cm^2 = microjoules per square centimeter

Algae / Protozoa	$\mu\text{W}/\text{cm}^2$	mJ/cm^2
Chlorella vulgaris (algae)	22,000	22
Blue-green Algae	420,000	420
E. hystolytica	84,000	84
Giardia lamblia (cysts)	100,000	100
Nematode Eggs	40,000	40
Paramecium	200,000	200

Virus	$\mu\text{W}/\text{cm}^2$	mJ/cm^2
Adeno Virus Type III	4,500	4.5
Bacteriophage (E. coli)	6,600	6.6
Coxsackie	6,300	6.3
Hepatitis virus	8,000	8
Influenza virus	6,600	6.6
Polio virus	6,000	6
Rotavirus	24,000	24
Tobacco mosaic	440,000	440

Yeast	$\mu\text{W}/\text{cm}^2$	mJ/cm^2
Baker's yeast	8,800	8.8
Brewer's yeast (common)	6,600	6.6
Common yeast cake	13,200	13.2
Saccharomyces cerevisiae	13,200	13.2
Saccharomyces cerevisiae	13,200	13.2
Saccharomyces ellipsoideus	13,200	13.2
Saccharomyces sp.	17,600	17.6