

# AMERICAN ULTRAVIOLET COMPANY

"Serving the Industry Since 1960"

*Incident energies of germicidal ultraviolet radiation at 253.7 nanometers necessary to inhibit colony formation in organisms (90%) and for complete destruction.*

<b>MOLD SPORES</b>	<b>Color</b>	<b>Energy needed for kill factor</b>	
		<i>Microwatt seconds per square centimeter</i>	
		<b>90%</b>	<b>100%</b>
<i>Aspergillus flavis</i>	<i>Yellowish green</i>	60,000	99,000
<i>Aspergillus glaucus</i>	<i>Bluish green</i>	44,000	88,000
<i>Aspergillus niger</i>	<i>Black</i>	132,000	330,000
<i>Mucor racemosus A</i>	<i>White gray</i>	17,000	352,000
<i>Mucor racemosus B</i>	<i>White gray</i>	17,000	352,000
<i>Oospora lactis</i>	<i>White</i>	5,000	11,000
<i>Penicillium expansum</i>	<i>Olive</i>	13,000	22,000
<i>Penicillium roqueforti</i>	<i>Green</i>	13,000	26,400
<i>Penicillium digitatum</i>	<i>Olive</i>	44,000	88,000
<i>Rhisopus nigricans</i>	<i>Black</i>	111,000	220,000

<b>ORGANISM</b>	<b>90%</b>	<b>100%</b>
<i>Bacillus anthracis</i>	4,520	8,700
<i>Bacillus magaterium sp. (spores)</i>	2,730	5,200
<i>Bacillus magaterium sp.(veg.)</i>	1,300	2,500
<i>Bacillus paratyphusus</i>	3,200	6,100
<i>Bacillus subtilis spores</i>	11,600	22,000
<i>Bacillus subtilis</i>	5,800	11,000
<i>Clostridium tetani</i>	13,000	22,000

**Energy needed for kill factor**  
*Microwatt seconds per square centimeter*

<b>ORGANISM (continued)</b>	<b>90%</b>	<b>100%</b>
Corynebacterium diphtheriae	3,370	6,500
Eberthella typosa	2,140	4,100
Escherichia coli	3,000	6,600
Leptospira Canicoal-infections Jaundice	3,150	6,000
Micrococcus candidus	6,050	12,300
Micrococcus spheroides	1,000	15,400
Myrobacterium tuberculosis	6,200	10,000
Neisseria catarrhalis	4,400	8,500
Phtomonas tumeficiens	4,400	8,000
Proteus vulgaris	3,000	6,600
Pseudomonas aeruginosa	5,500	10,500
Pseudomonas fluorescens	3,500	6,600
Salmonella enteritidis	4,000	7,600
Salmonella paratyphi-enteic fever	3,200	6,100
Salmonella typhosa-typhoid fever	2,150	4,100
Salmonella typhimurium	8,000	15,200
Sarcina lutea	19,700	26,400
Serratia marcescens	2,420	6,160
Shigella dysenteriae-Dyentery	2,200	4,200
Shigella flexneri-Dysentary	1,700	3,400
Shigella paradysenteriae	1,680	3,400
Spirillum rubrum	4,400	6,160
Staphylococcus albus	1,840	5,720

**Energy needed for kill factor***Microwatt seconds per square centimeter*

<b>ORGANISM (continued)</b>	<b>90%</b>	<b>100%</b>
Staphylococcus aureus	2,600	6,600
Streptococcus hemolyticus	2,160	5,500
Streptococcus lactis	6,150	8,800
Streptococcus viridans	2,000	3,800
Vibrio comma-Cholera	3,375	6,500
<b>PROTOZA</b>		
Chlorella vulgaris(Algae)	13,000	22,000
Nematode eggs	4,000	92,000
Paramecium	11,000	20,000
<b>VIRUS</b>		
Bacteriophage (E.Coli)	2,600	6,600
Infectious Hepatitis	5,800	8,000
Influenza	3,400	6,600
Poliovirus-Poliomyelitis	3,150	6,000
Tobacco mosaic	240,000	440,000
<b>YEAST</b>		
Brewers yeast	3,300	6,600
Common yeast cake	6,000	13,200
Saccharomyces carevisiae	6,000	13,200
Saccharomyces ellipsoideus	6,000	13,200
Saccharomyces sp.	8,000	17,600

## Reflective Factors on various surfaces at 254nm wavelength

<u>Material</u>	<u>% Reflectance *</u>
Aluminum, etched	88
Aluminum, foil	73
Aluminum, polished commercial	73
Chromium	45
Glass	4
Nickel	38
Silver	22
Stainless steel	20-30
Tri-plated steel	28
Water paints	10-30
White cotton	30
White oil paint	5-10
White paper	25
White porcelain	5
White wall plaster	40-60

- *Values obtained at normal incidence. The percentage reflectances increases rapidly at angles greater than 75%*

## Extinction depths at 254nm wavelength - relationship to clear water

<u>Material</u>	
Apple juice	1.0
Beer	<1.3
Liquid sugar	1.0
Milk - whole, raw	<0.1
Vinegar	<5.0
Water - concrete cistern	<75
Water - distilled	3000
Water - tap or mains	125-180
Wine	<2.5