

What Microorganisms are Inactivated by Germicidal Ultraviolet Light?

Incident energies at 253.7 nanometers (2537 Angstroms) necessary to inhibit colony formation in greater than 99% of microorganisms (measured in Microwatt Seconds per Square Centimeter)

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Bacteria	UV Light Dose
<i>Agrobacterium lumefaciens</i> 5	8,500
<i>Bacillus anthracis</i> 1,4,5,7,9 (anthrax veg.)	8,700
<i>Bacillus anthracis</i> Spores (anthrax spores)*	46,200
<i>Bacillus megatherium</i> Sp. (veg) 4,5,9	2,500
<i>Bacillus megatherium</i> Sp. (spores) 4,9	5,200
<i>Bacillus paratyphosus</i> 4,9	6,100
<i>Bacillus subtilis</i> 3,4,5,6,9	11,000
<i>Bacillus subtilis</i> Spores 2,3,4,6,9	22,000
<i>Clostridium tetani</i>	23,100
<i>Clostridium botulinum</i>	11,200
<i>Corynebacterium diphtheriae</i> 1,4,5,7,8,9	6,500
<i>Dysentery bacilli</i> 3,4,7,9	4,200

Bacteria	UV Light Dose
<i>Eberthella typhosa</i> 1,4,9	4,100
<i>Escherichia coli</i> 1,2,3,4,9	6,600
<i>Legionella bozemanii</i> 5	3,500
<i>Legionella dumoffii</i> 5	5,500
<i>Legionella gormanii</i> 5	4,900
<i>Legionella micdadei</i> 5	3,100
<i>Legionella longbeachae</i> 5	2,900
<i>Legionella pneumophila</i> (Legionnaire's Disease)	12,300
<i>Leptospira canicola</i> -Infectious Jaundice 1,9	6,000
<i>Leptospira interrogans</i> 1,5,9	6,000
<i>Micrococcus candidus</i> 4,9	12,300
<i>Micrococcus sphaeroides</i> 1,4,6,9	15,400
<i>Mycobacterium tuberculosis</i> 1,3,4,5,7,8,9	10,000
<i>Neisseria catarrhalis</i> 1,4,5,9	8,500
<i>Phytomonas tumefaciens</i> 1,4,9	8,500
<i>Proteus vulgaris</i> 1,4,5,9	6,600
<i>Pseudomonas aeruginosa</i> (Environ.Strain) 1,2,3,4,5,9	10,500

Bacteria	UV Light Dose
<i>Pseudomonas aeruginosa</i> (Lab. Strain) 5,7	3,900
<i>Pseudomonas fluorescens</i> 4,9	6,600
<i>Rhodospirillum rubrum</i> 5	6,200
<i>Salmonella enteritidis</i> 3,4,5,9	7,600
<i>Salmonella paratyphi</i> (Enteric Fever) 5,7	6,100
<i>Salmonella Species</i> 4,7,9	15,200
<i>Salmonella typhimurium</i> 4,5,9	15,200
<i>Salmonella typhi</i> (Typhoid Fever) 7	7,000
Salmonella	10,500
<i>Sarcina lutea</i> 1,4,5,6,9	26,400
<i>Serratia marcescens</i> 1,4,6,9	6,160
<i>Shigella dysenteriae</i> – Dysentery 1,5,7,9	4,200
<i>Shigella flexneri</i> – Dysentery 5,7	3,400
<i>Shigella paradysenteriae</i> 4,9	3,400
<i>Shigella sonnei</i> 5	7,000
<i>Spirillum rubrum</i> 1,4,6,9	6,160
<i>Staphylococcus albus</i> 1,6,9	5,720

Bacteria	UV Light Dose
<i>Staphylococcus aureus</i> 3,4,6,9	6,600
<i>Staphylococcus epidermidis</i> 5,7	5,800
<i>Streptococcus faecaila</i> 5,7,8	10,000
<i>Streptococcus hemolyticus</i> 1,3,4,5,6,9	5,500
<i>Streptococcus lactis</i> 1,3,4,5,6	8,800
<i>Streptococcus pyrogenes</i>	4,200
<i>Streptococcus salivarius</i>	4,200
<i>Streptococcus viridans</i> 3,4,5,9	3,800
<i>Vibrio comma</i> (Cholera) 3,7	6,500
<i>Vibrio cholerae</i> 1,5,8,9	6,500
Molds	UV Light Dose
<i>Aspergillus amstelodami</i>	77,000
<i>Aspergillus flavus</i> 1,4,5,6,9	99,000
<i>Aspergillus glaucus</i> 4,5,6,9	88,000
<i>Aspergillus niger</i> (bread mold) 2,3,4,5,6,9	330,000
<i>Mucor mucedo</i>	77,000
<i>Mucor racemosus</i> (A & B) 1,3,4,6,9	35,200

Molds	UV Light Dose
<i>Oospora lactis</i> 1,3,4,6,9	11,000
<i>Penicillium chrysogenum</i>	56,000
<i>Penicillium digitatum</i> 4,5,6,9	88,000
<i>Penicillium expansum</i> 1,4,5,6,9	22,000
<i>Penicillium roqueforti</i> 1,2,3,4,5,6	26,400
<i>Rhizopus nigricans</i> (cheese mold) 3,4,5,6,9	220,000
Protozoa	UV Light Dose
Chlorella vulgaris (algae) 1,2,3,4,5,9	22,000
Blue-green Algae	420,000
E. hystolytica	84,000
<i>Giardia lamblia</i> (cysts) 3	100,000
Nematode Eggs 6	40,000
Paramecium 1,2,3,4,5,6,9	200,000
Virus	UV Light Dose
Adeno Virus Type III 3	4,500
Bacteriophage 1,3,4,5,6,9	6,600
Coxsackie	6,300

Virus	UV Light Dose
Infectious Hepatitis 1,5,7,9	8,000
Influenza 1,2,3,4,5,7,9	6,600
Rotavirus 5	24,000
Tobacco Mosaic 2,4,5,6,9	440,000
Yeast	UV Light Dose
Baker's Yeast 1,3,4,5,6,7,9	8,800
Brewer's Yeast 1,2,3,4,5,6,9	6,600
Common Yeast Cake 1,4,5,6,9	13,200
<i>Saccharomyces cerevisiae</i> 4,6,9	13,200
<i>Saccharomyces ellipsoideus</i> 4,5,6,9	13,200
<i>Saccharomyces sp.</i> 2,3,4,5,6,9	24,000

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* Approximate – Various sources may report different inactivation dosages.

Information from Atlantic Ultraviolet

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