



About UVC Light

The Sun releases ultraviolet radiation in three different wavebands – UVA, UVB, and UVC bands. The ozone layer in the atmosphere absorbs ultraviolet radiation, so almost, 99% of the UV light that reaches the Earth's surface is UVA.

Ultraviolet light is found just below the color violet, the lowest wavelength of light that is visible to the human eye. Since this light band is filtered by the Earth's atmosphere, organisms have not developed a natural defense against UVC energy.

When the DNA of bacteria, viruses, mold, algae, or yeast is exposed to UVC energy, the cell becomes unable to grow or reproduce, and quickly dies. The UVC light damages the nucleic acid of microorganisms by forming covalent bonds between certain adjacent bases in the DNA. This prevents the DNA from being able to unzip and replicate, so it cannot reproduce. When it tries to replicate, it dies.

Germicidal lamps are beneficial because they provide a chemical-free approach to disinfection. Nothing needs to be added to any object, the air or water to clean it. UVC sanitation is low maintenance and very energy efficient.

For more than 70 years, tens of thousands of UVC lamps and ballasts have been safely installed in hospitals to sterilize workspaces and tools. UVC sanitizing systems are also found in clinics, processing plants, commercial offices, manufacturing sites, and multi- and single-family residences.

Artificial UVC light is created by ionizing low pressure mercury vapor. UVC lamps are very similar to your run-of-the-mill fluorescent household lighting fixtures, but they are different in one important way: UVC lamps do not have a phosphorescent coating, the stuff that gives ordinary fluorescent bulbs their familiar soft white light. Ionized mercury produces a unique wavelength in the UVC band: 254 nanometers, or 254 nm. As Nature would have it, this band is the ideal wavelength for playing havoc with the DNA of microbes.

The exposure of germicidal ultraviolet is the product of time and intensity. High intensities for a short period and low intensities for a long period are fundamentally equal in lethal action on bacteria. The inverse square law applies to germicidal ultraviolet as it does to light: the killing power decreases as the distance from the lamps increases. The average bacterium will be killed in ten seconds at a distance of six inches.

Below, is a list of germs, shown in research, to be eliminated with UVC light.

UVC Light Eliminates these Germs

Bacteria	Associated Condition
<i>Agrobacterium tumefaciens</i>	Crown Gall Disease
<i>Bacillus anthracis</i>	Anthrax
<i>Bacillus anthracis</i> Spores	Anthrax Spore
<i>Bacillus megaterium</i>	Wet Wood Disease
<i>Bacillus megaterium</i> Spores	Wet Wood Disease Spores
<i>Bacillus paratyphus</i>	not pathogenic
<i>Bacillus subtilis</i>	Conjunctivitis
<i>Bacillus subtilis</i> Spores	Conjunctivitis Spores
<i>Clostridium tetani</i>	Tetanus
<i>Clostridium botulinum</i>	Botulism
<i>Corynebacterium diphtheriae</i>	Diphtheria
<i>Enterococcus faecalis</i>	Endocarditis
<i>Eberthella typhosa</i>	not pathogenic
<i>Escherichia coli</i>	E. Coli/Peritonitis
<i>Legionella bozemanii</i>	Pontiac Fever/Pneumonia
<i>Legionella dumoffii</i>	Pontiac Fever/Legionnaires'
<i>Legionella gormanii</i>	Pontiac Fever/Legionnaires'
<i>Legionella micdadei</i>	Pittsburgh Pneumonia
<i>Legionella longbeachae</i>	Pontiac Fever/Legionnaires
<i>Legionella pneumophila</i>	Legionnaires' Disease
<i>Leptospira conicola</i>	Infectious Jaundice
<i>Leptospira interrogans</i>	Leptospirosis/Infectious Jaundice
<i>Micrococcus candidus</i>	not pathogenic
<i>Micrococcus sphaeroides</i>	not pathogenic
<i>Mycobacterium tuberculosis</i>	Tuberculosis
<i>Neisseria catarrhalis</i>	Respiratory Disease
<i>Moraxella catarrhalis</i>	Meningitis/Endocarditis/Pneumon ia
<i>Proteus vulgaris</i>	UTI/Bacteremia/Pneumonia
<i>Pseudomonas aeruginosa</i> (environment)	Nosocomial Infection
<i>Pseudomonas aeruginosa</i> (lab)	Nosocomial Infection
<i>Pseudomonas fluorescens</i>	Urinary Tract Infection
<i>Rhodospirillum rubrum</i>	not pathogenic
<i>Salmonella enteritidis</i>	Gastroenteritis/Septicemia
<i>Salmonella paratyphi</i>	Para-Typhoid Fever
<i>Salmonella species</i>	Gastroenteritis/Septicemia
<i>Salmonella typhimurium</i>	Gastroenteritis/Septicemia
<i>Salmonella typhi</i>	Typhoid Fever
<i>Salmonella</i>	Gastroenteritis/Septicemia
<i>Sarcina lutea</i>	Reproductive Problems
<i>Serratia marcescens</i>	Septicemia/Abscesses
<i>Shigella dysenteriae</i>	Dysentery/Enteric Infection

Shigella flexneri	Dysentery
Shigella paradysenteriae	Dysentery
Shigella sonnei	Bacillary Dysentery
Spirillum rubrum	not pathogenic
Staphylococcus albus	Pneumonia/Meningitis/TSS
Staphylococcus aureus	Pneumonia/Meningitis/TSS
Staphylococcus epidermis	Peritonitis/Abscesses
Streptococcus hemolyticus	Strep Throat/Scarlet Fever
Streptococcus lactis	not pathogenic
Streptococcus pyogenes	Strep Throat/Scarlet Fever
Streptococcus salivarius	Bacterial Endocarditis
Streptococcus viridans	Strep Throat/Scarlet Fever
Vibrio cholerae	Cholera

Fungi

Associated Condition

Aspergillus amstelodami	Sinusitis/Meningitis/Endocarditis
Aspergillus flavus	Carcinogen - Aflatoxin
Aspergillus glaucus	Sinusitis/Meningitis/Endocarditis
Aspergillus niger	Sinusitis/Meningitis/Endocarditis
Baker's Yeast	not pathogenic
Brewer's Yeast	not pathogenic
Common Yeast	not pathogenic
Geotrichum Candidum	Geotrichosis
Mucor mucedo	Zygomycosis
Mucor racemosus	Zygomycosis
Penicillium chrysogenum	Penicilliosis
Penicillium digitatum	Penicilliosis
Penicillium expansum	Penicilliosis
Penicillium roqueforti	not pathogenic
Rhizopus nigricans	Zygomycosis
Saccharomyces cerevisiae	not pathogenic
Saccharomyces ellipsoideus	not pathogenic

Protozoa

Associated Condition

Chlorella vulgaris	not pathogenic
Cryptosporidium	Cryptosporidiosis
Blue-Green Algae	Toxin - Microcystins/Liver Damage
Entamoeba histolytica	Amoebiasis
Giardia lamblia	Giardiasis
Paramecium	not pathogenic
Plasmodium	Malaria
Trypanosoma cruzi	Chagas Disease

Virus

Associated Condition

Adenovirus Type I	Infectious Canine Hepatitis
Adenovirus Type II	Infectious Canine Hepatitis