
LUMALIER
UV SURFACE & AIR DISINFECTION
PHILIPS
UV Technology
Surface and Air Disinfection

APPLICATION CHART

Our most effective designs can involve a combination of products to address every source of your indoor air contamination.

		Home & Office			Hospitality & Educational			Commercial and Industrial						Healthcare and Group Residential							Clean Room/ Controlled Environment			
		Residential - New HVAC	Residential - Retrofit/Existing	Office /Light Commercial	Schools and Daycare	Hospitality - Hotel /Motel	Dormitories	Office Building	Manufacturing	Large Commercial	Bio-Terror Defense	Govt / Airport Buildings	Restaurant / Meetings	Healthcare - Common Areas	Healthcare - High-risk Areas	Shelters / Disaster Planning	Correctional Facilities	Nursing Home/Assisted Living	Medical Transport	Operating Rooms	High Tech Industries	Food Processing	Mail/Package Handling	Biotech Laboratories
Lab/Biotech and Clean Room																								
Total Room	**BLU**								✔		✔	✔		✔	✔	✔	✔			✔	✔	✔	✔	✔
Work Station	**UVS**								✔		✔	✔			✔					✔	✔	✔	✔	✔
Water-proof Enclosure	**CSU**			✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Chamber	**DC**			✔	✔			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Healthcare & Commercial HVAC																								
Large Walk-in	**EXTV**							✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Modular	**DRU**				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Multi Lamp	**ADPL-60-4**			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
PTAC unit	**FCU**	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔	✔	✔
Limited Space	**BLUC**				✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Portable																								
Rapid Room Disinfection	**TRU-D**								✔		✔	✔		✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Portable	**EDU**								✔		✔	✔		✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Lumawand	**LW**								✔		✔	✔		✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Upper Air																								
Wall Mount 8 to 9'	**WM**			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Corner	**CM**			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Hallway	**HW**			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Wall Mount 9 to 10'	**VM-418**			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Wall Mount	**GL**			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔	✔	✔
Pendant Round	**PM**			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Pendant Square	**VM-818**			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Air mixer	**SAM**			✔	✔	✔		✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔	✔	✔
Suspension Mount	**GC**			✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔			✔	✔	✔	✔
Residential / Light Commercial HVAC																								
Single Lamp	**ADPL-136**	✔	✔																					
Dual Lamp	**ADPL-260**			✔	✔		✔	✔						✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Dual Lamp, Filter, PCO	**IAQ-1**	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Package / Rooftop	**PRU**		✔	✔	✔	✔	✔	✔	✔	✔			✔	✔	✔	✔	✔	✔		✔	✔	✔	✔	✔
Emergency Medical																								
Medical Transport	**ADU**																		✔					
Portable Transport	**EDU**																		✔					
Measuring Device																								
UV	**X9**																							

HOW DOES ULTRAVIOLET DISINFECTION WORK?

Ultraviolet Light is commonly divided into three categories, UV-A, UV-B and UV-C, also know as Ultraviolet Germicidal Irradiation, or UVGI. UV-C is referred to as germicidal energy because of its ability to pierce through the outer cell wall of a microorganism and disrupt its DNA, preventing reproduction or colonization. Germicidal energy can provide high level disinfection of airborne pathogens and surface decontamination of all known virus, bacteria and fungal (mold) spores. It has been used since the 1930's to disinfect patient rooms, operating suites and to successfully reduce the transmission of airborne pathogens.

UVGI has three primary applications:

Within HVAC systems to target airborne pathogens and destroy surface growth on A/C coils to reduce energy consumption.

Wall-mounted UVGI lamps that generate a field of germicidal energy in the upper space of high-risk areas such as patient and waiting rooms.

Portable UVGI systems for ongoing high-level disinfection of contaminated surfaces and airborne pathogens.

Work Stations - Model **UVS**

The UVS models are designed for small area disinfection, such as individual work stations, fume hoods or lab tables. Lumalier's UVS-DS model is equipped with a deflector shield which allows properly protected lab personnel to work in close proximity to the UVGI energy.

Large Spaces - Model **BLU**

Designed for any location where it is necessary to neutralize and eliminate biological contamination in unoccupied spaces, such as in biotech areas and hospital OR suites. All specimens and materials within glass and plastic containers are fully protected from the effects of UV energy.

Unoccupied Rooms / Washdown Areas - Model **CSU**

The Lumalier cabinet disinfector is a wall-mounted, stainless-steel, laboratory grade disinfection device that uses cleansing germicidal energy to disinfect unoccupied spaces. When the sealed door is closed and latched, the room can be washed down with no harm to the UV device. Ideal for food processing applications.

Disinfection Chamber - Model **DC-60**

The Lumalier **DC-60** Disinfection Chamber is a laboratory grade enclosed device that uses germicidal energy to disinfect the surface of objects such as letters, packages, food, toys, cups and personal items. Anthrax spores, smallpox, cold viruses and many other disease carrying bacteria are inactivated when exposed to proper levels of UV-C.

FEMA Risk Management Series:

"Ultraviolet Germicidal Irradiation (UVGI) is lethal to microorganisms. All viruses and almost all bacteria are vulnerable to moderate levels of UVGI exposure."

Model UVS

Model UVS-DS

Model BLU

Model CSU

Model DC-60

EXPERT ENGINEERING - UNSURPASSED QUALITY

Engineered Framing Systems are Factory built and Factory Tested. Shipment choice as 'ready-to-install' or 'fast-assembly knock-down kit.'

Twist-lock electrical connections provide quick service disconnect and secure, vibration-free performance.

Access Door Safety Switch automatically shuts the system down for service and maintenance.

- Every Lumalier system is engineered to meet or exceed 2008 ASHRAE guidelines as published in Chapter 16 of the HVAC Systems and Equipment Handbook.
- Lumalier furnishes complete systems, including all required safety switches, signage and viewports. Others ship only "light strips" that require field fabrication and engineering of safety features and components.
- Lumalier originated 360° distribution of UV Energy for disinfection of air moving at 500fpm, while simultaneously disinfecting surfaces in proximity to the lamp systems.
- Lumalier features highly-efficient, low mercury, non-proprietary Philips SteriLamps to help reduce replacement costs by as much as 75%.
- Lumalier's engineering staff will determine the number and size of UV-C lamps, product specs and system placement required to disinfect your moving air. Call us for recommendations, specifications, and CAD drawings for any application.
- Lumalier builds every UV system to last the lifetime of your Air Handling Equipment.

Model ***EXTV***

Economical, Complete UV-C Lamp Systems for large air handlers. Available in 1, 2, or 3 row systems engineered specifically for any size commercial system.

Model ***DRU***

Track mounted systems simply slide out for ease of service. Engineered for air handlers less than 50" in interior height.

One-Row System Shown

Slides out for easy servicing

HEALTHCARE & COMMERCIAL HVAC

Large commercial air handlers and duct systems require the targeted application of UV energy to achieve air disinfection. UV energy also deep cleans the AC coils to reduce energy consumption and improve overall HVAC efficiency and performance. With our exclusive designs, Lumalier can engineer the exact UVGI delivery system for any need or application.

Model ***ADPL-60***

In-duct fixtures can be quickly and easily installed at any convenient location in the duct system and require no expensive modification to the HVAC system. In-duct UV units are available in a variety of standard configurations to fit the specific dimensions of your ducts and airflow.

EPA TESTED
Lumalier EPA Establishment Number 86538-TN-001

Model ***FCU***

Lumalier's UVGI PTAC disinfectors provide an effective and easy way to disinfect the air in hotel rooms, classrooms, dormitories or any location where unit ventilators are installed for climate control. Several models are available to fit most PTAC units from major manufacturers.

CLASSIFIED UL

FILE #E183446
AIR DUCT MOUNTED ACCESSORY WITH RESPECT TO ELECTRICAL SHOCK, FIRE, AND CASUALTY HAZARDS ONLY.
27RF

The health aspects associated with the use of this product and its ability to aid in disinfection of environmental air have not been investigated by UL.

Look for UL Classification Marking on Product.
The Classification Mark of Underwriters Laboratories Inc. is the only method provided by UL to identify products manufactured under its Classification and Follow-Up Service. Many, but not all, of our products are Certified by UL. Please contact us for information on specific UL Certified products

Model ***BLUC***

Model BLU uses reflectors to direct concentrated UV energy inside larger air handlers, providing air and surface disinfection.

Greener Buildings:

"UVGI reduces microbial levels on HVAC surfaces ... can result in energy savings which can be significant, with payback of possibly less than 2 years. In addition, the associated improvements in air quality may reduce respiratory distress symptoms and thus improve attendance and work performance in occupied spaces." *ASHRAE 2008 – HVAC Systems and Equipment Handbook, Chapter 16*

Model ADPL-60

Model FCU

Model BLUC

PORTABLE

TRU-D™ is a patented, mobile, automated room disinfection device. Once activated by remote, UV-C sensors measure the UV-C germicidal energy reflected back to the unit from surfaces within the room (μWcm²-s/rd). "An onboard CPU calculates the time required to disinfect all surfaces within the room, including areas in primary and secondary shadow, and displays disinfection progress information on the remote screen in real time. **TRU-D™** automatically powers down when programmed disinfection has been achieved.

Lumalier provides advanced germicidal disinfection products and engineering controls that help eliminate environmental reservoirs of pathogens that exist in healthcare facilities, schools, retirement homes, correctional facilities, and other congregate settings.

RAPID

All surfaces disinfected in minutes.

THOROUGH

Calculated delivered dose ensures air and surface disinfection, even in shadowed areas. System automatically adapts to any room configuration.

FREQUENT

Proactively treat up to 48 rooms per day.

AUTOMATED

Eliminates human error and informs the operator when programmed disinfection dose has been applied.

SAFE

No chemicals, toxins or EPA certification requirements. Features door safety sensors, barrier signage and audible commands.

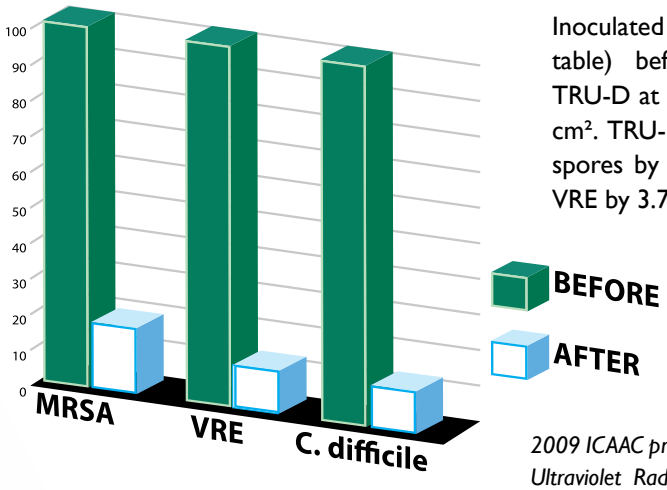
PORTABLE

TRU-D™

RAPID ROOM DISINFECTION

LUMALIER CORPORATION

DISINFECTION WITHOUT CHEMICALS



Inoculated surfaces (i.e. lab bench, toilet, table) before and after application of TRU-D at a reflected dose of 22,000 µWs/cm². TRU-D reduced recovery of C.difficile spores by 2.2 logs, MRSA by 2.8 logs, and VRE by 3.7 logs.

2009 ICAAC presentation, "Evaluation of an Automated Ultraviolet Radiation Device for Decontamination of Healthcare-Associated Pathogens in Hospital Rooms"

TRU-D *is:*

"a novel method for cleaning hospital rooms ... easy to use ... and more effective than standard disinfection for removing hardy bacteria. The TRU-D device was able to decontaminate all surfaces in hospital rooms, including hard-to-clean surfaces such as the undersides of tables."

Curtis Donskey, MD, Chair of the Infection Control Committee at the Cleveland VA Medical Center

Patents
6,656,424 & 6,911,177

UPPER AIR - Wall Mount

Ceiling Heights of 8 to 9 ft.

***WM** Model*

These fixtures are for use in areas where wall mounting is preferred. The effective coverage area for the WM-136 is 240 sq. feet and the WM-236 is 480 sq. feet. Model WM uses either 1 or 2 Philips PL-L 36W UV lamps.

***CM** Model*

This corner mount is for use in small rooms where available wall space is at a premium. The effective coverage area for the CM-218 unit is 110 sq. feet. Model CM uses 2 Philips PL-L 18W UV lamps.

***HW** Model*

The hallway mount is for use in hallways, corridors and other long, narrow spaces. HW-218 should be spaced 20' apart in corridors and uses 2 Philips PL-L 18W UV lamps.

Ceiling Heights of 9 feet or higher

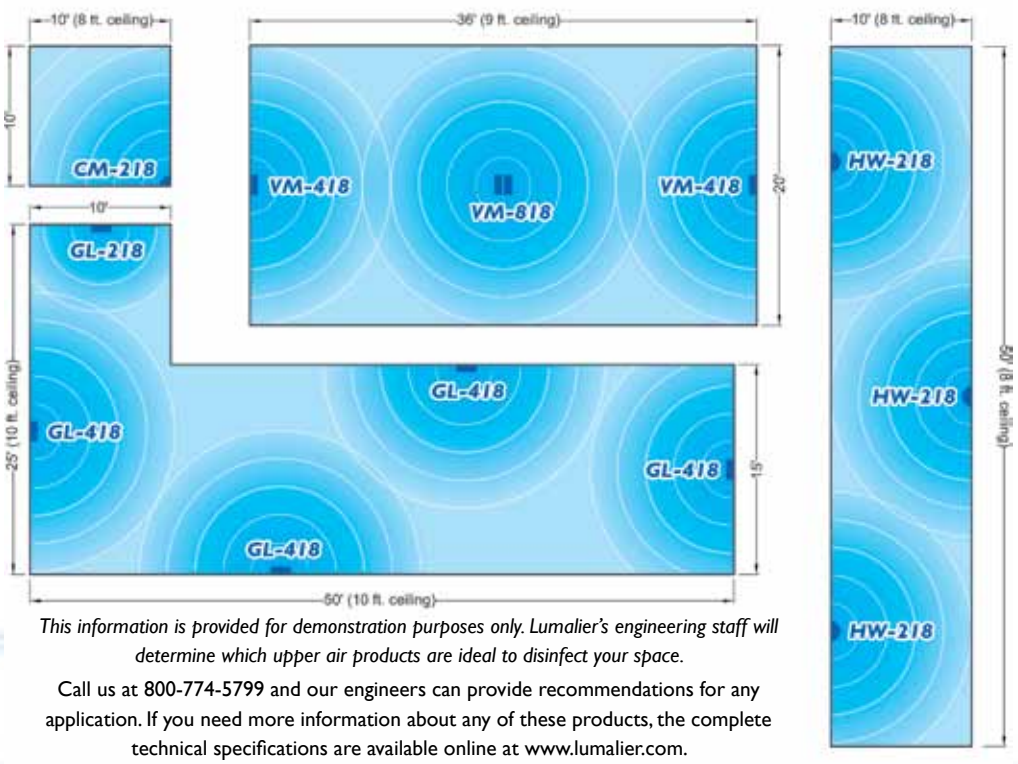
***VM-418** Model*

These fixtures are for use in areas where wall mounting is preferred. The effective coverage for the VM-418 unit is 360 square feet. Model VM-418 uses 4 Philips PL-L 18W UV lamps.

Ceiling Heights of 10 feet or higher

***GL** Model*

These fixtures are for use with high ceilings allowing for an open style UV fixture. The effective coverage area for GL-118 is 110 sq. ft., GL-218 is 220 sq. ft., and GL-418 is 440 sq. ft. and each model uses 1, 2 or 4 Philips PL-L18W UV lamps.



This information is provided for demonstration purposes only. Lumalier's engineering staff will determine which upper air products are ideal to disinfect your space.

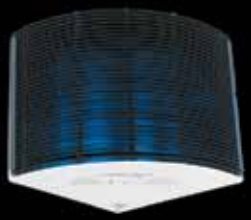
Call us at 800-774-5799 and our engineers can provide recommendations for any application. If you need more information about any of these products, the complete technical specifications are available online at www.lumalier.com.

Why Choose Upper Air:

Upper air units are ideal for control of airborne contamination in high-risk or congregate areas.

Model WM

Model GL



Model CM

Model HW

Model VM

UPPER AIR - Ceiling Mount

Ceiling Mount with Ceilings 8 feet or higher

PM *Model*

This round pendant mount is for use in areas where ceiling mounting is preferred. The effective coverage area for the PM-418 unit is 440 square feet and the unit uses 4 Philips PL-L 18W UV Lamps.

Ceiling Mount with Ceilings 9 feet or higher

VM-818 *Model*

This square pendant mount is for use in large areas where ceiling mount is preferred. The effective coverage for the VM-818 unit is 720 square feet and the unit uses 8 Philips PL-L 18W UV Lamps.

SAM *Model*

Sanitizing Air Mixers are for use in areas where occupants may have direct line of sight into the fixture. UV lamps are not directly visible in a SAM unit, making this design safe to use in challenging areas. A fan draws contaminated air into the unit, disinfects it, and recirculates cleaner, healthier air. The effective coverage area is 440 sq ft. and each unit uses 2 Philips PL-L 18W UV Lamps.

Ceiling Mount with Ceilings 10 feet or higher

GC *Model*

This model is for use n large open spaces where ceiling mounting is preferred. The effective coverage area of the GC-136 is 240 sq. feet and the GC-236 is 480 sq. feet and the unit uses 1 or 2 Philips PL-L 36W UV Lamps.

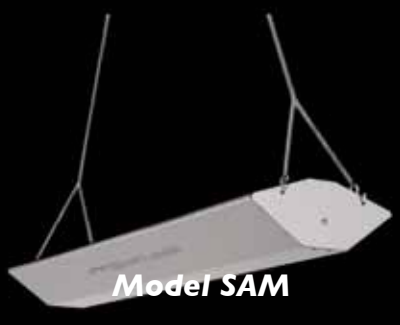
Air Mixing is the Key:

Since 1997, CDC/NIOSH has conducted and funded studies to determine the ability of Upper-room UVGI to kill or inactivate airborne mycobacteria. Completed research indicates that an appropriately designed system may kill or inactivate airborne bacteria and increase the protection afforded to healthcare workers.

Basic Upper-Room Ultraviolet Germicidal Irradiation Guidelines for Healthcare Settings, 2009 Department of Health and Human Services.

Model PM

Model VM-818



Model SAM

Model GC

EMERGENCY MEDICAL SERVICES

Permanent Installation - Model ***ADU***

From ambulances to EMS helicopters, this device can be permanently installed into any vehicle. Stretchers, railings, medical equipment, control panels, flooring, walls and work surfaces are all likely to be directly contaminated during patient transport and can be difficult to clean. The Model ADU will disinfect any exposed surface while materials in glass or plastic containers are shielded from the germicidal effects.

Portable Use - Model ***EDU***

This portable area disinfector is designed for use in small spaces, such as rest rooms, equipment rooms, and emergency vehicles where permanent installation is not practical. It can be used in ambulances, police cars, and correctional passenger vans and buses. The unit is equipped with a user-specified time delay and activation timer. Both the timer and the delay can be set in second, minute and hour increments.

Model ***ADU***

Model ***EDU***

UV-C MEASUREMENT

The ***X-9*** Handheld Radiometer measures irradiance and dose in the UV-C spectral range at 254nm. The radiometer is capable of accurate high level UV-C output readings at the lamp source, or very low UV-C levels required to verify safe human exposure. Despite its compact dimensions, the meter offers a large display and an RS 232 interface. Operation is simple for the benefit of non-technical personnel.

ASHRAE Position Document on Airborne Infectious Diseases, 2009:

"…UVGI, when effectively applied, inactivates infectious agents locally and can be considered in public access and high-traffic areas such as cafeterias, waiting rooms, and other public spaces. In-room UVGI can be considered as a kind of disinfection between successive occupants of a room."

RESIDENTIAL/LIGHT COMMERCIAL HVAC

The forced air system in any home or office isn't just recirculating the air, its also recirculating airborne pathogens, mold, dust and a host of other harmful substances. Lumalier transforms your HVAC system into an efficient, facility-wide air disinfection system. Our IAQ-1, ADPL and PRU units, once installed into the forced air system of any home or small office building, remove bacteria, mold, chemical and smoke odors, viruses and other airborne contaminants from the air.

New or Existing HVAC Systems

Split-System HVAC Units up to 5 tons - ***ADPL-136***

This unit is an ideal choice to destroy airborne virus and bacteria moving through the system, and spore growth (mold) growing on coils, drain pans and UV compatible filters. Optional PCO Grid removes volatile organic compounds, the cause of common household odors.

Split-System HVAC Units up to 10 tons - ***ADPL-260***

In medium-sized commercial applications, the dual lamp ADPL can be installed directly over "A" style coils or in return air ducts to disinfect both air and surfaces.

Rooftop/Package HVAC Units up to 5 tons - ***PRU***

The model PRU kit is installed within the air handler to provide continuous disinfection of air flow and improved energy efficiency.

Three-Stage Indoor Air Quality System - ***IAQ-1***

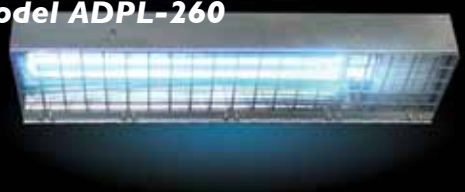
Lumalier has created a simple and effective way to add an indoor air quality system to new HVAC installations. The IAQ-1 can also be placed into the air return duct of an existing HVAC system. The three-stage IAQ-1 combines three proven technologies in one compact, easy-to-install unit; pleated dust filters, UVGI lamps and PCO (photocatalytic oxidation) TiO_2 SAINT GOBAIN QUARTZEL® FELT.

Lumalier Recommends:

Lumalier's Model ADPL-136 is effective as a stand-alone unit, but we recommend that you install two lamps to achieve maximum air and surface disinfection within the HVAC system - one in the return air supply near a UV-compatible filter and a second near the AC coil.

Model ADPL-136

Model ADPL-136
with optional PCO Grid



Model ADPL-260

Model PRU

Model IAQ-1

Lumalier's Partners:

PHILIPS

UV Technology
Surface and Air Disinfection

Powered by ADVANCE® Quality Ballasts

CLASSIFIED UL

FILE #E183446
AIR DUCT MOUNTED ACCESSORY WITH RESPECT TO ELECTRICAL SHOCK, FIRE, AND CASUALTY HAZARDS ONLY.
27RF

The health aspects associated with the use of this product and its ability to aid in disinfection of environmental air have not been investigated by UL.

Look for UL Classification Marking on Product. The Classification Mark of Underwriters Laboratories Inc. is the only method provided by UL to identify products manufactured under its Classification and Follow-Up Service. Many, but not all, of our products are Certified by UL. Please contact us for information on specific UL Certified products

Lumalier's History:

Since 1963, Lumalier has pioneered the application of Ultraviolet Germicidal Irradiation to help reduce airborne and surface pathogen contamination in healthcare, educational, correctional, workplace and group-living environments. We work closely with the CDC, private and governmental agencies to provide engineering controls in the fight against the spread of infection around the world.

1-800-774-5799
www.lumalier.com
743 S. Dudley St. • Memphis, TN 38104

Part #LUM0110

UV Dose for Inactivation

BACTERIA	UV Dose* µW/cm²
Agrobacterium lumefaciens	8,500
Bacillus anthracis (anthrax veg.)	8,700
Bacillus anthracis Spores (anthrax spores)	46,200
Bacillus megatherium Sp. (veg)	2,500
Bacillus megatherium Sp. (spores)	5,200
Bacillus paratyphosus	6,100
Bacillus subtilis	11,000
Bacillus subtilis Spores	22,000
Clostridium tetani	23,100
Clostridium botulinum	11,200
Corynebacterium diphtheriae	6,500
Dysentery bacilli	4,200
Eberthella typhosa	4,100
Escherichia coli	6,600
Legionella bozemanii	3,500
Legionella dumoffill	5,500
Legionella gormanil	4,900
Legionella micdadei	3,100
Legionella longbeachae	2,900
Legionella pneumophila (Legionnaire's Disease)	12,300
Leptospira canicola-Infectious Jaundice	6,000
Leptospira interrogans	6,000
Micrococcus candidus	12,300
Micrococcus sphaeroides	15,400
Mycobacterium tuberculosis	10,000
Neisseria catarrhalis	8,500
Phytomonas tumefaciens	8,500
Proteus vulgaris	6,600
Pseudomonas aeruginosa (Environ.Strain)	10,500
Pseudomonas aeruginosa (Lab. Strain)	3,900
Pseudomonas fluorescens	6,600
Rhodospirillum rubrum	6,200
Salmonella enteritidis	7,600
Salmonella paratyphi (Enteric Fever)	6,100
Salmonella Species	15,200
Salmonella typhimurium	15,200
Salmonella typhi (Typhoid Fever)	7,000
Salmonella	10,500
Sarcina lutea	26,400
Serratia marcescens	6,160
Shigella dysenteriae - Dysentery	4,200
Shigella flexneri - Dysentery	3,400
Shigella paradysenteriae	3,400
Shigella sonnei	7,000
Spirillum rubrum	6,160
Staphylococcus albus	5,720
Staphylococcus aureus	6,600
Staphylococcus epidermidis	5,800
Streptococcus faecaila	10,000
Streptococcus hemolyticus	5,500
Streptococcus lactis	8,800
Streptococcus pyrogenes	4,200
Streptococcus salivarius	4,200
Streptococcus viridans	3,800
Vibrio comma (Cholera)	6,500
Vibrio cholerae	6,500
MOLDS	
Aspergillus amstelodami	77,000
Aspergillus flavus	99,000
Aspergillus glaucus	88,000
Aspergillus niger (breed mold)	330,000
Mucor mucedo	77,000
Mucor racemosus (A & B)	35,200
Oospora lactis	11,000
Penicillium chrysogenum	56,000
Penicillium digitatum	88,000
Penicillium expansum	22,000
Penicillium roqueforti	26,400
Rhizopus nigricans (cheese mold)	220,000
PROTOZOA	
Chlorella vulgaris (algae)	22,000
Blue-green Algae	420,000
E. hystolytica	84,000
Giardia lamblia (cysts)	100,000
Nematode Eggs	40,000
Paramecium	200,000
VIRUS	
Adeno Virus Type III	4,500
Bacteriophage	6,600
Coxsackie	6,300
Infectious Hepatitis	8,000
Influenza	6,600
Rotavirus	24,000
Tobacco Mosaic	440,000
YEASTS	
Baker's Yeast	8,800
Brewer's Yeast	6,600
Common Yeast Cake	13,200
Saccharomyces cerevisiae	13,200
Saccharomyces ellipsoideus	13,200
Saccharomyces sp.	17,600

*Approximate - Various sources may report slightly differing inactivation dosages