



FREQUENTLY ASKED QUESTIONS

How do UV-C germicidal lamps kill?

Ultraviolet light in the germicidal wavelength (185-254 nanometers) renders the organisms sterile. The molecular structure of the DNA is broken down rendering the microorganism harmless.

What types of organisms does UV-C light effectively kill?

UV-C light kills $\geq 99.9\%$ of bacteria, mold spores, algae, protozoa, viruses, and yeast. The most common are MRSA, VRE, *Acinetobacter* and *C. difficile*.

How much intensity is needed to kill certain types of organisms?

The exposure to 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 log rule applies to germicidal ultraviolet as it does to other frequencies of light: the killing power decreases as the distance from the lamps increases.

To be effective, how close to the surfaces do UV-C lamps need to be?

The closer to a surface the UV-C light is placed, the stronger the dose delivered. Steriliz uses proprietary patent pending technology that measures the definitive dose to any given area a sensor is placed. Depending on the protocol established by each organization for example, sensors can be placed based on distance from the UV-C lights or in heavily shadowed areas to make sure the proper amount of UV-C light has been received.

Will areas in the room that were not fully lit be decontaminated with UV-C light?

A significant advantage the R-D Rapid Disinfectant system offers compared to other UV-C products is the ability to place patent pending remote sensors in shadowed areas to ensure that those areas actually receive the UV-C dose needed to kill specified pathogens. The R-D system will only complete a decontamination job after all sensors definitively receive the programmed dose of UV-C light.

Where can I place UV-C fixtures?

Steriliz UV-C products can be used in just about any location provided necessary precautions are followed. Systems have been used in hospitals, laboratories, homes, medical and healthcare offices and other commercial and residential environments where the threat of harmful pathogens exists.

Can UV-C penetrate surfaces or substances?

No – UV-C disinfects only what it comes in contact with. All bio-matter must be wiped up prior to using UV-C light treatments.

How do you determine the square footage that one UV-C lamp will cover?

The Steriliz R-D Rapid disinfectant bases its coverage on where remote UV-C sensors are placed. Generally the R-D System will cover the average size hospital room in one cycle. Larger rooms may require multiple cycles to distribute the required UV-C recommended dose. The R-D system can be moved and relocated depending on the room size and layout to ensure the entire room is properly treated. This significantly reduces the treatment time since each individual machine placement actually measures and reports that each specified area in a given environment where sensors are placed have received the necessary UV-C dose.

How often do lamps need to be replaced?

The Steriliz R-D Rapid Disinfectant uses Philips germicidal T8 lamps / TUV75WHO / MFG# 290908. Lamps have a life expectancy of 9,000 hours and should be replaced when they reach that number of operating hours. Based upon average lamp "on-time" of 1,000 hours per year lamps will last up to 9 years.



Should UV-C lamps be cleaned?

Yes, depending on the surrounding environment, UV-C lamps should be checked periodically (approximately every three months), and can be cleaned with a dry cotton cloth or paper towel. Wear rubber gloves and clean with alcohol only. This will also help maximize the lamp life.

How hot do UV-C lamps get?

UV-C lamps do not produce much heat – about the same as fluorescent lamps.

Do UV-C lamps produce ozone?

Some do and some don't. The R-D Rapid Disinfectant uses Philips germicidal UV-C lamps that are made from a special form of ozone blocking quartz glass so they produce no ozone. Ozone producing UV lamps are used for water purification systems.

What is the odor produced from UV-C lamps?

The distinct smell associated with intense UV-C disinfection is caused by photolysis - the chemical decomposition of naturally occurring fatty acids in the air and upon surfaces when exposed to high intensity ultraviolet light. In a typical hospital room with a ventilation system capable of 6 to 12 Air Changes per hour the smell dissipates very quickly. Unlike the odor associated with bleach and other chemical disinfectants the UV-C smell is non-toxic and the room may be occupied immediately upon completion of UV-C disinfection.

What effects does UV light have on surrounding materials?

Long-term exposure of UV-C light to plastics will shorten the shelf life of the plastic by approximately 10%. Example: If the plastic would normally last about 10 years, and it is exposed to UV-C light the entire time, it might need to be replaced in 9 years. Plant life may be damaged by direct, or reflected, germicidal ultraviolet rays. Transient dyes and colors may fade from prolonged exposure to ultraviolet rays.

What safety precautions should be taken when using UV-C light?

Only trained personnel should be operating the equipment and necessary steps need to be taken prior to turning the R-D System on for use. All personnel must leave any room that is being treated with UV-C light. Steriliz has developed and installed a number of safety measures that must be followed and activated before the system will function. Unlike hydrogen peroxide vapor systems, UV-C treatment does not require that users seal the door and air vents in the room being treated which requires more operator training and set up time.

What percentage of UV light is blocked out by glass?

Normal glass (used in windows) blocks substantially 100% of UV-C light. This is easily tested by placing one of the R-D sensors on the other side of the glass when operating the light. If the reading is zero or one then the glass blocks UV-C.

Are challenge devices easily lost and expensive to replace?

The R-D remote challenge device sensors are a significant differentiator from other UV systems which is why no other competitor can find a comparable solution to offer the operator. The R-D is the only system that uses remote challenge device sensors to actually measure the UV dose received at the targeted area of interest. Other UV systems do not have access to this type of proprietary technology and have no way of telling the operator where their UV light goes. Furthermore, after a job is completed, the message “replace sensors in charger base” appears on the system remote control PDA / Tablet as an additional reminder to the operator. The question that we should be asking someone who puts up this barrier is the following: “if you had the ability to measuring something or not measuring something what would you choose?” The remote sensors become the “eyes of the operator” allowing visibility of what actually takes place inside a disinfecting environment. The R-D system can operate with 1 or up to 60 wireless remote sensors. Sensors are covered under the standard product warranty and can be easily replaced if lost or damaged. Steriliz has never had a customer lose a sensor – the sensors ability to measure the prescribed UV dose is why they choose the R-D Rapid Disinfectant.



Are the bottoms of challenge devices breeding grounds for cross contamination?

The sensor bases are disinfected after each use when they are placed back into the charger base (which has been disinfected during each job run) – the system cleans itself upon each use. The only way for the base to get contaminated is if the area was not disinfected properly prior to placing the device there. What should be important to infection control is the ability to know that the definitive amount of UV needed to kill pathogens has been delivered and measured to targeted high touch surface areas (including shadowed areas). Without the use of challenge device sensors there simply is no way to know areas have received the proper dose to eradicate dangerous pathogens.

Are the bulbs expensive, difficult to replace, and easily broken?

Each Philips lamp costs about \$25-\$30 USD. Each lamp is rated for up to 9,000 hours. Even if the lamps intensity deteriorates over time, the R-D system will still operate and deliver the prescribed dose to the remote challenge device sensors. Since the operator will not be in the room when the R-D is in operation, the system has the ability to detect if there is a lamp out and generates a trouble ticket that a lamp needs to be replaced. In order to protect the lamps while the system is being transported, the R-D is protected by a fixed stainless steel cage that can be easily accessed in the event a lamp needs replacement. Additionally, the R-D will continue to operate even if a lamp is out unlike other single point UV systems.

Do Steriliz bulbs offer less killing energy?

R-D system uses Philips T8 / TUV75WHO lamps. The system offers the maximum UV lamps allowed based on a standard 15 amp circuit power draw.

Is the system is complex and difficult to use?

The R-D system is easy to use and operates with a user friendly PDA / Tablet (e.g., Samsung Galaxy) standard interface. Operating cycle time to disinfect a standard 12'X12' patient room (including the bathroom) is approximately 15 minutes. The R-D offers “system simplicity” with few moving parts. Additionally, facility information is preloaded into the system to eliminate human error. The system remote control walks the user step by step through the job process so minimal training is needed operate the system. The R-D even offers various language selections to accommodate operators.

Does the space under the emitter get disinfected?

Since the R-D can be paused and repositioned, the ~ 2' X 2' space underneath the emitter is actually disinfected where other stationary systems leave behind an area that has not been properly disinfected.

Can the R-D be operated without access to Wi-Fi?

The R-D does not need Wi-Fi to operate the system. It can operate independently using an embedded single wireless access point that communicates directly to the remote control PDA / Tablet. Job data is stored after each job run and transmits to a secured cloud server once the unit connects to a Wi-Fi signal and automatically uploads the data for reporting purposes.

