

RESTORING OUR RESILIENT COMMUNITIES

INTRODUCTION TO

Krypton™ Disinfection Light



CONGRATULATIONS!

Your facilities and/or vehicles are now protected by the preferred air and surface disinfection system used by the Pentagon, Department of Defense and numerous healthcare facilities, schools, transportation systems and more.

To better understand Krypton Disinfection Lighting, we have compiled the following Frequently Asked Questions about how this solution can and will protect you and your family as well as some background on the innovation and the much healthier future we envision.

FREQUENTLY ASKED QUESTIONS



Why is ultraviolet light the most effective way to reduce or eliminate diseases caused by surface and airborne pathogens?

For almost 100 years, scientists have known about a spectrum of light called UV-C that can be artificially created with specialty lamps to inactivate viruses, bacteria or fungi. Microscopic life has largely not been exposed to these narrower bands of ultraviolet light from the sun as they are blocked by the ozone layer in the earth's atmosphere and therefore microorganisms have not materially evolved biological resistance to their potential damaging effects on microscopic DNA or proteins.

It's why the majority of municipally supplied drinking water and hospital operating rooms are treated with UV-C to ensure safety from dangerous pathogens. Ultraviolet light does not introduce or leave dangerous chemicals in your environment and is not subject to human error in application.



Why is Far UV safe and different from other types of ultraviolet light?

Commercial advertisements targeting sunscreen and sunglasses to protect against longer wavelength "UV-B" ultraviolet light from the sun with wavelengths between 280-315nm and concerns with other longer wavelength UV-C with wavelengths around 254nm created with mercury lamps have created substantial misunderstanding and confusion as to whether any wavelength or amount of ultraviolet light should be considered a health risk.

There are several international standards setting organizations (ACGIH, IEC, ICNIRP, ANSI and EC) that have been publishing peer reviewed consensus on the safe amount of any wavelength of light for human and animal exposure for decades.

As proven by Columbia University Medical Center and confirmed by an IUVA SARS-CoV-2 task force and several others, lower amounts of narrower wavelengths of Far ultraviolet light around 222nm simply cannot penetrate the outermost nonliving cells in human or animal skin or eyes. Krypton disinfection lighting utilizes this narrow band of "Far" ultraviolet light around 222nm wavelengths to inactivate pathogens in the air and on surfaces within the well-known safety limits.

It seems like we have tried everything but we're still at risk. How can Krypton Disinfection Lighting help?

The greater protection provided with Krypton disinfection lighting is urgently needed for several very important reasons:

1) The heavily promoted best practices of social distancing, face masks and hand hygiene were predicated on an initial belief that the SARS-CoV-2 virus was predominantly transmitted via surfaces and were quickly proven to not be enough on their own to eliminate the risks of transmission even when people tried hard to utilize them. There was/is simply too much risk of human error in their application. Krypton disinfection lighting overcomes many of these challenges as it does not rely on humans to:

- Remember not to be too close to each other;
- Wear their face masks correctly; and/or
- Keep their hands clean and/or not touch their faces.

Far UV Technologies recommends the continuing use of these best practices augmented with an additional layer of Far UV protection to address the human limitations. Independent peer reviewed studies have indicated that utilizing Far UV in occupied spaces provides occupants with a layer of protection comparable to wearing an N95 facemask.

2) Once it became better known that the virus was predominantly transmitted through the air, the CDC and ASHRAE noted that the only evidence-based solutions for airborne disinfection were increasing the use of ventilation, ultraviolet light and HEPA filters to reduce the viral load in our environments. While most newer buildings are currently designed to provide up to 3 Air Changes per Hour (ACH), many older buildings only obtain between 0 and 2 ACH. Hospital waiting rooms have long been designed to have 6 ACH based on the assumption that someone might be carrying a respirable disease. Today, and for the foreseeable future, that assumption of heightened risk extends to all of our occupied buildings or vehicles, whether we are seeking protection from SARS-CoV-2 variants, the next naturally occurring pathogen or even a new synthetically created one.

Yet very few people have upgraded their facilities and/or vehicles to this new clean air standard. This may be driven by the costs, contracting delays and practical challenges surrounding the implementation of increasing ventilation, the primary solution HVAC contractors would target based on their limited experience with UV or HEPA alternatives.

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Even if a contractor could be booked in a reasonable time frame to add new Roof Top Units and open up the walls to install new ductwork, most people need to retain access to their facilities and Harvard Medical School has indicated that UV light can provide up to 24+ equivalent ACHs at about 1/13th the cost of improved ventilation and 1/3rd the cost of HEPA filters. Recent studies in the U.K. have further proven that Far UV can safely provide an equivalent of 35 ACH in controlled real-world applications

3) Getting a vaccine or having contracted COVID-19 already does not mean that you can ignore precautions:

- Being vaccinated and/or being previously infected does not necessarily provide instant immunity to variants or higher viral concentrations of a virus;
- The duration of vaccine or previously infected immunity is unknown; and
- The herd immunity threshold for COVID-19 is unknown. Herd immunity occurs when enough of the population is exposed to the virus, typically through vaccination but potentially through infection and survival, and limits the ability of the virus to spread. The percentage of population requiring immunization to achieve herd immunity varies by disease. For example, with measles, 95% of the population needs to be vaccinated in order to limit spread. It is possible that this coronavirus will continue to mutate and make herd immunity difficult if not impossible.

4) Pandemics used to occur every 100 years or so, often connected to World Wars where large amounts of people were exposed to less sanitary environments as infrastructure was destroyed. As our world has become increasingly interconnected and our infrastructure is increasingly damaged by the unpredictable and often unsanitary conditions resulting from environmental change and the accompanying natural disasters (hurricanes, tornados, foods, fires, etc), epidemics have started to more recently occur every decade and are now occurring almost every three years.

With these macro trends unlikely to reverse anytime soon, it is critical that we field new tools now to protect ourselves from the inevitable increase in disease that accompanies these conditions. Emerging diseases are not only often deadly in their own capacity but can overwhelm our healthcare systems and impede our individual immune systems' ability to stave off the myriad of existing colds, flus, foodborne illnesses and hospital acquired infections we've grown complacent in just accepting as an unfortunate aspect of life.

The best outcome of the pandemic may be that we now have tools like Krypton disinfection lighting that can reduce or eliminate existing and future disease-causing pathogens for good. Sometimes the best defense is actually a good offense and Krypton lighting can continuously and autonomously reduce or eliminate the threat of pathogens in the air and on the surfaces all around us.

WHY HAVE I ONLY RECENTLY HEARD OF FAR UV?

Far UV has been the cornerstone of Boeing's Confident Travel Initiative since the beginning of the Pandemic. Fortunately, Far UV Technologies has been supported and funded under US Government contracts over the last several years from NASA and the Department of Defense to be ready for just such an unfortunate pandemic and www.faruv.com

Krypton disinfection lighting is commercially available now. Krypton disinfection lighting has been the preferred disinfection solution in defense facilities across the country all the way up to the Pentagon, hospitals, medical and dental clinics, airports, buses, offices, schools, homeless shelters, theaters and many, many more applications around the world. To date, we have not heard of any reported incidents of transmission in these facilities under our fixtures, many of which have been in place for over a year and had asymptomatic Delta variant carriers later identified within their facilities.

We are helping to return us to a society where we do not fear other breathing, talking, coughing, sneezing or singing. While our collective acceptance and complacency with preexisting disease may not have allowed this technology to gain significant adoption before, the pandemic has changed people's awareness, understanding and attitude towards disease and their desire to protect themselves, their families and their communities from their often-devastating impacts. We believe within the next 5-10 years that Krypton disinfection lighting should and possibly will be in all higher-traffic, higher-risk occupied environments.

IS IT HARD TO USE FAR UV TO PROTECT OUR FACILITIES?



Krypton disinfection lighting is a set-it-and-forget-it solution. Similar to a smoke detector, it is simple to install, use and validate and/or it can be immediately deployed with portable plug-and-play alternatives. It provides continuous and autonomous air and surface disinfection, eliminating the significant costs and potential human error of other manual solutions and does not utilize chemicals. For only a few dollars a day, almost anyone can eradicate dangerous pathogens that lead to disease in their occupied environment. And we're not just talking about SARS-CoV-2 and COVID-19, we're envisioning a world without having to deal with the common seasonal colds and flus, foodborne illnesses such as E coli and salmonella, hospital acquired infections such as MRSA and even mold, all of which have been independently validated to be reduced by over 99.9% with our devices. www.faruv.com

Far UV Technologies is headquartered in Kansas City. Our mission is to make the world a better place by reducing or eliminating the dangerous pathogens in our schools, transportation systems, healthcare facilities, workplaces and more. Krypton disinfection lighting is as important and ubiquitous for the control and eradication of microorganisms we can't see as conventional lighting is to the benefit of everything else we can. The rapidly growing team of passionate scientists, engineers and professionals at Far UV Technologies and our expanding list of global partners are working hard to help provide solutions to transform your facilities into healthy disease-free environments for good. We hope these FAQs have been helpful. A lot more information is available on our website at www.faruv.com. Please don't hesitate to contact us should you have any other questions or we can help you with your applications.