

SPOTLESS TECH'S NEW ST-650

4-LOG UV-C DISINFECTION CABINET

Use the power of UV-C light for pure protection against viruses and bacteria

Spotless Tech's 4-log UV-C Disinfecting Cabinet is designed to decontaminate contents from harmful viruses and bacteria while providing a safe environment for the workplace. By optimally positioning GE UV-C Germicidal modules inside the cabinet to eliminate blind spots and using Highly Advanced Reflective Material to efficiently bounce the light within the cabinet, contents within the cabinet are disinfected within minutes. Additional safety features include a digital timer and an interlock cabinet door to ensure the UV-C modules cannot be powered on until the cabinet door is securely closed. Controls include On-Off Power, timer control, safety door interlock, safety kill switch and in-use LED indicators.

HOW IT WORKS

WHAT IS UV-C LIGHT?

UV light has three wavelength categories: UV-A, UV-B, and UV-C. UV-C light wavelengths are between 200 and 300 nanometers. UV-C is germicidal and effective in breaking apart microorganisms, such as bacteria, molds, and viruses.

WHY IS UV-C EFFECTIVE?

Ultraviolet germicidal irradiation (UVGI) is a disinfection method that uses short-wavelength ultraviolet

(ultraviolet C or UV-C) light to kill or inactivate microorganisms by destroying nucleic acids and disrupting their DNA, leaving them unable to perform vital cellular functions

Microorganisms such as bacteria, viruses, cysts, and mold are simple lifeforms that reproduce by subdivision, budding, or by producing spores. The reproduction of these organisms is vital to their life cycle. Loss of their ability to grow and multiply is classified as cellular death and renders them harmless and no longer pathogenic. When exposing microorganisms to UV-C light, the light penetrates through their cell walls and disrupts the structure of their DNA molecules, prohibiting reproduction. Because Our UV-C disinfection Cabinet does not rely on chemicals or filtration materials, it can be used effectively and safely over and over and over again.

WHAT IS THE MAXIMUM CAPACITY OF LAWSON TECH'S CABINET?

The inside dimension of Spotless Tech's ST-650 UV-C Disinfecting Cabinet is (Need Dim's). With this design, you can fit the following products and quantities as an example: (Add Examples)



WHAT IS THE CYCLE TIME NEEDED TO KILL DIFFERENT VIRUS TYPES?

There are different irradiation cycle times required to kill different types of pathogen types. For example, it takes the Spotless Tech's UV-C Disinfecting Cabinet less than one minute to reach the 99.99% kill rate for SARS-CoV-2, the virus that causes COVID-19.

For a full list of pathogens and the associated cabinet cycle, click [Link to UVC Radiation Times \(LINK\)](#)

WHAT IS FAR UV-C AND HOW IS THE GE'S TECHNOLOGY BETTER?

Light is a form of electromagnetic radiation in different wavelengths (nm). The UV spectrum is 100-400nm (UV-C to UVA). The optimal germicidal wavelength, based on CDC guidelines, is 265nm. The FAR UV-C spectrum is 222nm. Spotless Tech's ST-650 UV-C Disinfecting Cabinet uses GE's TUV T5 lamps. ([LINK TO GE](#)). The wavelength of the GE TUV T5 lamp is 265nm. Therefore, GE's technology using UV-C is more efficient and much closer to the optimum wavelength than products using FAR UV-C. It is important to note here that the FDA specifies that manufacturer claims of disinfecting products must be substantiated with data. If the manufacturer cannot provide data that their product kills SARS-CoV-2, then the guidance from the FDA is to avoid the product.

HOW DOES THE CABINET OPERATE?

The user manual can be found [here](#) or view the training video on the page above. ([LINK](#))

CAN YOU PROVIDE AN OVERVIEW OF SPOTLESS TECH'S UV-C CABINET AND HOW DO YOU KNOW IT IS EFFECTIVE IN DISINFECTING ITEMS?

The Spotless Tech's UV-C Disinfecting Cabinet is designed to decontaminate contents from harmful viruses and bacteria while providing a safe environment for the workplace. By optimally positioning UV-C modules inside the cabinet to eliminate blind spots, contents are disinfected within minutes. Research and testing have shown that exposing germs to UV-C light for a certain amount of time, at a certain energy level, and at a certain distance will render those germs inactive. See the [USER MANUAL](#) for detailed instructions. We are also including UV-C indication stickers with the cabinet that can be placed within the cabinet to assure the user that the items inside are receiving the required amount of exposure.

HOW IS UV-C MORE EFFECTIVE THAN WIPING DOWN ITEMS WITH SANITIZING WIPES?

Disinfecting chemicals can be toxic and harmful to both humans and the environment. They can also damage electronic equipment. Many chemical-based sanitizing wipes require 'standing time' to be effective. For example, one of the most popular sanitizing wipe brands is only 99.9% effective in inactivating SARS-CoV-2 after leaving the chemicals on the surface for two minutes. Our cabinet is 99.99% effective against SARS-CoV-2 in less than (NEED NUMBER) minutes by delivering (NEED NUMBER) mJ of UVC energy (per the Boston University study) ([LINK TO STUDY](#)) and there are no chemicals involved. Not all items can be disinfected by using sanitizing wipe (i.e., electronics). To completely disinfect items, all surfaces need to be accessible. This is achievable using the UV-C automatically while using wipes requires strict adherence to cleaning protocols.

There are also strict guidelines on properly using sanitizing wipes to reach the proper sanitation level. The American Journal on Infection Control provided a research study discussing these challenges.

HOW DOES UV-C WORK IN KILLING VIRUSES AND BACTERIA?

Disinfection performance is a function of the UV dose. The performance result is made up of the amount of UVC energy being delivered over time, the distance of the energy to the surface being disinfected, and the duration the surface is exposed to the UVC energy.

IS UV-C EFFECTIVE AS A GERMICIDAL AGAINST VIRUSES AND BACTERIA?

UV-C has been well studied and proven as an effective germicidal against viruses and bacteria. (PROVIDE LINKS)

HAS THE CABINET BEEN TESTED AGAINST COVID-19?

Spotless Tech's UV-C Disinfecting Cabinet has not been independently tested. But Phillips TUV T5 lamps UVC Germicidal (LINK TO GE) Lamps the Spotless Tech ST-650 uses have been. The test results showed that the Phillips TUV T5 lamps UV killed SARS-CoV-2, the virus that causes COVID-19. (LINK TO PHILLIPS)

IS FDA APPROVAL REQUIRED FOR THE CABINET?

No, FDA's guidance is found here.

Spotless Tech's ST-650 UV-C Disinfecting Cabinet is recognized in Section B (2) as an Ultraviolet (UV) Disinfecting Device. The FDA guidance for Spotless Tech's UV-C Disinfecting Cabinet in response to COVID-19 is found on page 9:

"In addition, during the declared public health emergency, FDA does not intend to object to the distribution and use of sterilizers, disinfectant devices, and air purifiers that are intended to be effective at killing the SARS-CoV-2 virus but do not already have FDA marketing authorization, without compliance with the following regulatory requirements where such devices do not create an undue risk in light of the public health emergency: prior submission of a premarket notification under section 510(k) of the FD&C Act and 21 CFR 807.81 or submission of a PMA Supplement under section 515 of the FD&C Act and 21 CFR 814.39, Registration and Listing requirements in 21 CFR 807, and Unique Device Identification requirements in 21 CFR 830 and 21 CFR 801.20. FDA believes such devices will not create such an undue risk where the performance and labeling elements in Sections IV.A and IV.B, respectively, are met. As an example, this would apply to a manufacturer of a new medical air purifier that has not been approved or cleared and that is effective in filtering out dust particles and bacteria, where the manufacturer would like to modify the filter mesh size to filter out viruses, including the SARS-CoV-2 virus."

Therefore, the FDA does not require the Spotless Tech's UV-C Disinfecting Cabinet to be approved by the FDA for the market in response to COVID-19. Further, as described under Section A. Performance guidance, the Spotless Tech's cabinet will meet the design, evaluation, and validation of performance relevant to the enforcement policies set forth in the document.

IS EPA APPROVAL REQUIRED?

No, approval is not required, however, the EPA does regulate UV-C devices under their pesticide guidance found here. The Spotless Tech's UV-C Disinfecting Cabinet is a regulated device requiring that Spotless Tech provide data that shows that we meet the claims that we're making.

CAN THE CABINET BE MOBILE?

Yes, within reason. for more information regarding mobile applications, please contact us

WHAT ARE THE HEALTH RISKS WITH UV-C?

All UV can be hazardous to humans. The Spotless Tech's UV-C Disinfecting Cabinet has been designed with several safety features. These include an interlock cabinet door to ensure the UV-C modules cannot be powered on until the cabinet door is securely closed and a digital timer to indicate when the cabinet has completed its cycle. The cabinet also includes internal gasketing to eliminate UV-C light leakage. Additional safety controls include an On-Off power switch and an in-use LED indicator notifying the user the cabinet is in use.

IS THE PURCHASE OF THE CABINET COVERED UNDER THE CARES ACT?

Yes, US Treasury guidance on the CARES Act and the use of funds for the Spotless Tech's UV-C Disinfecting Cabinet is here. (LINK)

Warnings: (FROM PHILLIPS)

1. UV-C radiation is harmful to the eyes and skin; therefore people and animals should always avoid direct exposure to UVC. When installing the lamps make sure the installation manual of the device is followed and lamps are not switched-on during installation. All Philips TUV lamps have warning text and signs on the boxes and individual packaging.
2. Materials that are exposed to UV-C and/or ozone for a long time may become damaged and/or discolored.
3. Our UV-C sources are not intended and shall not be used in applications or activities which may cause death, personal injury, and/or damage to the environment.
4. For Lamps (mercury-containing) following should be added in the instructions/user manual:

System Disposal

We recommend that the Philips TUV lamps are disposed of in an appropriate way at the end of their (economic) lifetime. These lamps contain mercury (Hg), necessary for the performance of these lamps. Therefore these lamps should be treated as special waste and be disposed of in accordance with local regulations. For Signify information on recycling and collection:

<https://www.signify.com/global/sustainability/product-compliance/collection-and-recycling>

Safe Use instructions on how to handle a broken bulb: (See Instruction Manual)

1. Evacuate people and animals from the room.
2. Ventilate the room for at least 15 minutes prior to starting the cleanup.
3. Wear personal protective equipment such as (disposable) gloves, safety glasses.
4. Collect the broken pieces and debris with two pieces of stiff paper or cardboard.
5. Use sticky tape to pick up any remaining fine glass or powder.
6. Clean the area after collecting the debris with a damp cloth or towel to remove any residual particles.
7. Collect all the pieces and debris in a sealable container (glass) and dispose of them as special waste.

Detailed information can be found at the following sites:

USA: requirements for handling broken mercury products:

<https://www.epa.gov/cfl/cleaning-broken-cfl>

Useful Resources:

<https://www.once.lighting/one-minute-three-minutes-or-ten-minutes-oh-my/>

<http://intellego-technologies.com/hospital/>

<http://www.iuva.org/IUVA-Fact-Sheet-on-UV-Disinfection-for-COVID-19>

https://www.iuvanews.com/stories/pdf/archives/180301_UVSensitivityReview_full.pdf

<https://www.thorlabs.com/navigation.cfm>

<https://insights.regencylighting.com/can-uv-light-kill-viruses-like-covid-19>

<https://uvsolutionsmag.com/>

<https://www.green-sources.com/uv.html>

<https://www.cdc.gov/coronavirus/2019-nCoV/index.html>

<https://www.ophiropt.com/laser--measurement/knowledge-center/article/10145>

<https://blog.lightbulbs-direct.com/choosing-ultraviolet-bulbs-the-difference-between-uva-uvb-anduvb/>

<https://arxiv.org/ftp/arxiv/papers/1907/1907.11003.pdf>

<https://www.porex.com/markets/reflective-media/>