

UV-C LIGHT SUMMARY AND FACTS OF THE GLOBAL BATTLE VS. COVID-19

SUMMARY: UV-C technology is on the global front line battling and winning against the COVID-19 Pandemic. UV-C technology is 50 years old and is scientifically proven to kill dangerous and contagious microorganisms. UV-Clean is trusted by hospitals to kill microorganisms and is a lab tested UV-C disinfection product that helps save lives by eradicating the heartiest of viruses and bacteria on surfaces. Hospitals use UV-C disinfection on surfaces in ORs, and patient rooms routinely. These surfaces include metal, plastics and glass. UV-Clean is currently being used in hospitals for disinfection of high-touch surfaces, including touch screens, pumps and monitors, keyboards, handheld charging stations, phones and tablets.

FACTS: The virus of COVID-19 (SARS-CoV-2) is a close relative and 80% genetically related to SARS Coronavirus (SARS-CoV-1) from 2003 [i]. SARS-CoV-1 has been extensively tested against UV-C disinfection devices and UV-C light is proven to eliminate any traces of SARS-CoV-1 Coronavirus on treated surfaces [ii]. Today, UV-C light is being used to disinfect surfaces in hospital rooms, ambulances and airplanes and is an effective way to combat COVID-19 (SARS-CoV-2) transmission [iii]. UV-C light is also being used to disinfect single use N95 masks so they can be reused up to 10 times [iv]. The below table shows the average unit wattage required for UV-Clean to achieve 99% eradication in two minutes. Previous Coronaviruses are not as hearty as many of the other bacteria and viruses eradicated by UV-Clean.

Bacteria/Virus	UV Intensity to Achieve 99% eradication at 2 minutes [v]
Salmonella Species	53 uW/cm ²
E.Coli	50 uW/cm ²
Influenza	50 uW/cm ²
Staphylococcus Species	42 uW/cm ²
Coronavirus (SARS / MERS)	35 uW/cm ²
Streptococcus Species	33 uW/cm ²

The following are average measured intensities of the UV-24 that demonstrate the effectiveness against past Coronaviruses and other dangerous pathogens.

Distance Below Bulb	UV24 - Hg BULB
1 Inch	1330uW/cm2
3.5 inch	395uW/cm2
7 inch	118uW/cm2

The CDC supports UV-C disinfection in hospitals and has sponsored/published various studies and articles on the subject [vi].

In March 2020, the FDA released Guidance for Industry and Food and Drug Administration Staff where they identify UV-C light to produce a germicidal effect [vii].

UV-Clean, and all UV disinfection devices are regulated by the Environmental Protection Agency (EPA).

ENS has verified the content of this document and all information is accurate as of April 2020.

ENS is proud to contribute valuable technology in the fight against COVID-19 and we look forward to helping you keep your customers and employees safe.

Sincerely,

A handwritten signature in black ink, appearing to read "Joe Mach", written over a light grey rectangular background.

Joe Mach
President

References

- [i] Zhou, P., Yang, X., Wang, X. et al. A pneumonia outbreak associated with a new coronavirus of probable bat origin. Nature 579, 270-273 (2020). <https://doi.org/10.1038/s41586-020-2012-7>
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- [iii] Lindsley WG, McClelland TL, Neu DT, et al. Ambulance disinfection using Ultraviolet Germicidal Irradiation (UVGI): Effects of fixture location and surface reflectivity. J Occup Environ Hyg. 2018;15(1):1-12. doi:10.1080/15459624.2017.1376067
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- [v] Ultraviolet Germicidal Irradiation Handbook - Wladyslaw Kowalski - Springer-Verlag Berlin Heidelberg 2009
- [vi] Anderson DH, et al., 2013. New CDC Study Confirms Effectiveness of UV-C Disinfection to Combat Harmful Pathogens. <https://www.infectioncontroltoday.com/environmental-hygiene/new-cdc-study-confirms-effectiveness-uv-c-disinfection-combat-harmful>
- [vii] U.S. Department of Health and Human Services Food and Drug Administration. Enforcement Policy for Sterilizers, Disinfectant Devices, and Air Purifiers During the Coronavirus Disease 2019 (COVID-19) Public Health Emergency. March

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