

Does UV light kill the new coronavirus?

By Donavyn Coffey - Live Science Contributor July 12, 2020



A handful of N95 respirators get zapped with UV radiation.
(Image: © Shutterstock)

Ultraviolet light has been used to stop pathogens in their tracks for decades. But does it work against SARS-CoV-2, the virus behind the pandemic?

The short answer is yes. But it takes the right kind of UV in the right dosage, a complex operation that is best administered by trained professionals. In other words, many at-home UV-light devices claiming to kill SARS-CoV-2 likely aren't a safe bet.

UV radiation can be classified into three types based on wavelength: UVA, UVB and UVC. Nearly all the UV radiation that reaches Earth is UVA, because most of UVB and all of UVC light is absorbed by the ozone layer, according to the [Centers for Disease Control and Prevention](#). And it's UVC, which has the shortest wavelength and the highest energy, that can act as a disinfectant.

When it comes to a-home UVC lamps, their ability to damage skin and eyes isn't the only danger, Dr. Jacob Scott, a research physician in the Department of Translational Hematology and Oncology Research at Cleveland Clinic, said. These devices also have low quality control, which means there's no guarantee that you're actually eliminating the pathogen, he said.

"UVC does kill the virus, period, but the issue is you have to get enough dose," Scott told Live Science. "Particularly, for N95 masks, which are porous, it takes a pretty big dose" of UVC-254 nm to eliminate SARS-CoV-2. This kind of accuracy isn't possible with at-home devices.



In hospitals, the geometry of the room, shadowing, timing and the type of material or object being disinfected are all accounted for when experts determine the right dosage of UVC needed to kill pathogens. But that kind of "quality assurance is really hard out in the world, out in the wild," Scott said. At-home devices don't offer that kind of precision, so using them could offer a false assurance that SARS-CoV-2 has been eliminated when it hasn't, he noted. "Having something you think is clean, but it's not, is worse than something that you know is dirty" because it affects your behavior toward that object, he said.

Both Kohli and Scott and their teams are working to make UVC disinfection of personal protective equipment (PPE), such as face masks and N95 respirators, more efficient. Kohli's group advises hospitals and vendors repurposing existing UVC equipment for N95 respirator decontamination. Scott's group [developed a machine](#) that can be used by smaller medical facilities and a software program that helps users factor in the geometry of the disinfection room so that staff can deliver the most effective dose of UVC.

There are ongoing conversations in the field about installing UVC units in ceilings to decontaminate circulating air, Kohli said. And others are researching another wavelength of UVC called UVC-222 or Far-UVC, which may not damage human cells, she added. But that will require more research, Kohli said. Still, it's clear that "used accurately and responsibly, UVC has enormous potential."

Originally published on Live Science.

IP Systems, LLC provides fume extraction units designed to capture aerosols and viruses in an H-14 medical grade HEPA filter.

We recognize the use of UVC equipment can be useful for disinfecting surfaces, however, when placed in an air stream of a fume extraction unit; it is our observation that the dwell time is not long enough to kill the potential virus. Further the virus is captured in the H-14 filter media will not allow for the light to penetrate two where much of the virus trapped.

For more information go to <https://ipsystemsusa.com/products/f1000p-ae-series> or contact us at 770-614-7701.