



Can UVC kill the Novel Coronavirus?

The short story: We have been preaching and training on for 30 years that with the right intensity and contact time UVC kills viruses, bacteria and other micro-organisms. The Novel Coronavirus is a virus and UVC can kill it. Our Series 3 FM and RM UVC lights are the most powerful residential UV lights on the market today, with the highest kill and sterilization rates available for residential applications. With that said, our UVC technology has not been tested specifically against the new strain of coronavirus (COVID19) and your marketing should not make any direct claims that it has been or that it kills the coronavirus.

The details: With the right intensity, UVC energy is able to kill any kind of bacteria or virus. We presently don't know specifically the UVC dose necessary to kill this new Novel Coronavirus, yet viruses are some of the easiest micro-organisms to kill. Testing will have to be done to determine this kill rate, yet UVC will also disrupt its DNA sterilizing it rendering the virus harmless at even at lower UVC dosages. The amount of UVC intensity, measured in microwatts, necessary to kill viruses varies from virus to virus.

Here are a few examples, measured in Microwatt Seconds per Square Centimeter, of the amount of microwatts it would take to "kill" certain viruses:

Adeno Virus Type III 3 - 4,500 microwatts to kill
Bacteriophage - 6,600 microwatts to kill
Influenza - 6,600 microwatts to kill
Infectious Hepatitis - 8,000 microwatts to kill

As you can see, some are easier to kill than others, but all are killed by UVC. Sterilization of most viruses and bacteria will occur at the 1000 microwatt range.

What we do know is it takes a considerable amount of UVC dosage to kill germs and viruses. The principle of UVC kill and sterilization is related to intensity of the lamps used. The more powerful the lamp, the better the kill. Longer ducts with more opportunity for contact and dwell time create an environment for a better kill per pass. The slower the air is moving, the better the kill. So, we do have some variables here.

Our FM UVC and RM UVC models are designed to meet or exceed the design parameters set forth by Westinghouse and RTI labs. These labs tested and reported that you need a minimum of a 110 Microwatt lamp in an airflow, up to 2400 CFM, to get a 70 to 85% kill on most airborne micro-organisms in a duct system. The Novel Coronavirus would fall into this category. The lamp intensity is measured at one meter from the lamp. As germs get closer to the lamp, the intensity increases. Two inches from the lamp we have 5,814 microwatts and 963 microwatts at 14 inches away. We do not cover our UVC lamps with any type of cell or screen that would block the UVC rays from coming in contact with the virus. The best application is to have the lamp shine up and down the duct to give us the optimum time and distance to allow the germs to absorb the UVC light as they flow through the duct.

Although a 100% kill rate will not be obtained per pass, deactivation of the virus through sterilization is probable on every pass. Either way, kill or sterilization, the net effect is the same. If we kill it, it can't harm us. If we sterilize it, it becomes deactivated and rendered harmless as well since it can't reproduce.

The bottom line is that we have the highest microwatt intensity lamps on the residential market today at 180 microwatts @ one meter away. And we don't cover our lamps making them the most effective at killing and sterilizing any virus or bacteria.

Since there are so many variables to take into consideration with UVC applications and kill rates for any virus, we would suggest that you be careful on how you make any direct claims using the current Novel Coronavirus situation as a marketing approach. Giving kill rates or making any exact claims can be problematic due to the variables involved in killing any micro-organism with UVC lights. I would not suggest saying nothing. Educate yourself on what can be done to prevent getting any virus. "An ounce of prevention is worth a pound of cure." – Ben Franklin. It would be OK to promote being "proactive" or "reduce the likelihood" and installing a high output UVC unit in your HVAC system is part of being proactive. Ask your Dynamic IAQ Training Rep for our UVC Coronavirus IAQ info sheet, for use in the field.

Steve Mores
VP of Training and Sales
Dynamic Air Quality Solutions
630-417-4998