

Case Study: Small Room Sterilization using UV-Kleen™

Environmental Engineers at Yale university USA indicated that “we live in a microbial soup, and a big ingredient is our microorganisms”. A single person can add up to 37 million bacteria to the air every hour leading to significant accumulation of pathogenic material over a period in a small room. Applications including check in counters, front desks, patient rooms, personal offices, which are small in size (150-200 sq. ft), but are flooded with continuous traffic of people.

The following case study focuses on the UV-Kleen™ system to sterilize a small **144sqft.** room using **UVK-PRK-300W** model. The results below show that it only took 10 seconds to achieve enough UV-C energy and Ozone to kill Coronavirus that is under 6 inches away from the lamp source. And the system took 2.33 minutes, to kill 99.99% of its pathogens in every corner of the room, including millions of bacteria, virus, and mold. The UV-C and Ozone levels at 2.33 minutes are 50 mJ/cm² and 1.2 ppm which are large enough to kill Covid19 virus with a kill rate of 99.99%.

Anyone rarely needs 100 mJ/cm² of UV-C energy unless the application requires killing spores and other tough to kill algae. The UV-Kleen™ took 3.41 minutes to attain 100 mJ/cm², at that moment the Ozone levels are measured to 3.5, exceedingly large enough to kill all possible pathogens in the room. The Ozone is dissipated to 0.05ppm, an FDA approved limit in under 1 minute from the time the lamp system is turned off.

Parameters	Values
Dimensions of the room	12x12x8 ft
Lamp Location	Center of the room - floor
Temp and Humidity	68°F (20°C), 41%
Time for 50mJ/cm ²	10 sec @ 6 in 2.33 min @ 5 ft
Time for 100mJ/cm ²	3.41 min @ 5 ft
Ozone Levels	1.2 ppm in 2.33 sec @5 ft 3.5 ppm at 3.41sec @5 ft

With the above test results, it can be concluded that the UV-Kleen™ system requires **2.33** minutes to kill bacteria and viruses (including coronavirus) in a room of 144 sqft at every corner of the room. This clearly demonstrates how potent and also time efficient the UV-Kleen™ UV system can be, in killing all the pathogens including coronavirus.