



## **Efficacy of Medklinn Air+Surface Sterilizer against SARS-COV-2 (COVID-19) & Feline Coronavirus**

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### **Test Conducted by:**

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### **Test Method:**

#### **Cells and viruses: -**

The SARS-CoV-2 and Feline Coronavirus were used for this study. The SARS-CoV-2 used was isolated, propagated and maintained in Vero E6 cells at TIDREC. The Feline Coronavirus was obtained from ATCC and propagated in CRFK cells. Both Vero E6 cells and CRFK were cultured in DMEM (Gibco, Grand Island, NY, USA) supplemented with 10% FBS. The cells were maintained at 37°C with 5% CO<sub>2</sub>. When cytopathic effects (CPE) were evident under the microscope, the supernatant was harvested as virus stock, clarified by centrifugation, and stored at -80°C until needed. Virus titers were determined by titration using the Vero E6 cells/ CRFK cells and expressed in plaque forming unit (PFU/mL).

#### **Viral kill time assay: -**

The Medklinn Air+Surface Sterilizer (Medklinn International Sdn. Bhd.) which produced controlled low level of ozone using the Cerafusion™ Sterilization Technology was tested against SARS-CoV-2 and Feline Coronavirus using the virus plaque reduction assay. The product was tested at different ozone concentrations (1.2, 0.1 and 0.07 ppm) at different exposure time (0.5, 1, 2, 3, 5 and 8 hours). All tests were performed inside a 1.5ft<sup>3</sup> test chamber (1.5ft by 1ft by 1ft) purposely constructed using polycarbonate material with the installation of a fan in the chamber to ensure even distribution of the ozone over the exposed surfaces. The test assay comprised of 100 µL of virus suspension layered onto the petri dishes surface at concentration of 1 x 10<sup>5</sup> PFU/mL and placed inside the chamber. The virucidal activity was calculated by the difference in number of plaques in virus control minus number of plaques in the treated group divided to the number of plaques in virus control and multiples by hundred to achieve percentage of reduction.

### **Test Results:**

#### **Virucidal activity of Medklinn Air+Surface Sterilizer**

The efficacy results for the Medklinn Air+Surface Sterilizer against both SARS-CoV-2 and Feline Coronavirus were presented in Table 1 below. Results from the study suggest that exposure to at least 0.1 ppm ozone gas from the Medklinn Air+Surface Sterilizer at 85% humidity killed >90% of SARS-CoV-2 and Feline Coronavirus in 3 hours.

Table 1: The efficacy of Medklinn Air+Surface Sterilizer against the SARS-CoV-2 and Feline Coronavirus at different ozone concentration (ppm) and humidity. The data is presented as percentage reduction against the untreated virus control prepared in parallel.

Time hours	SARS-CoV-2			Feline Coronavirus					
	85% Humidity Ozone PPM			85% Humidity Ozone PPM			55% Humidity Ozone PPM		
	1.2	0.1	0.07	1.2	0.1	0.07	1.2	0.1	0.07
0.5	95.32%	-	-	91.03%	-	-	81.8%	-	-
1	99.57%	-	-	92.31%	-	-	88.6%	-	-
3	-	90.3%	80.85%	-	98.5%	66.7%	-	96.8%	54.8%
5	-	94.2%	85.36%	-	100%	88.2%	-	95.7%	74.2%
8	-	98.1%	88.97%	-	100%	88.97%	-	98.6%	82.3%